

Appendix B Printers and Labels

This Appendix describes Loftware-supported standard bar code and RFID printers. It also includes block and tag configuration information on the RFID HF and UHF tags available for supported RFID devices.

Label Printers and RFID Printers

Unless otherwise noted, the Loftware-supported RFID printers described in this section are UHF printers. These are printers that support encoding to UHF tag types.

Avery Information

This section provides information specific to the Avery family of printers. RFID Printers are italicized in shaded table cells. The Avery printers include:

6404	6404 ALT	6405	6405 ALT
6406	6406 ALT	6408	6408 ALT
ALX 924	ALX 925	ALX 926	AP 4.4
AP 5.4	AP 5.4 ALT	AP 7.t textile	DPM 4
DPM 5	DPM 6	S-262	S-362
S-462	TDI	TDI ALT	TTK
TTK ALT	TTX 1050	TTX 1050 ALT	TTX 300 OFL
TTX 300 OFL-ALT	TTX 300 ONL	TTX 300 ONL-ALT	TTX 350
TTX 350 ALT	TTX 450	TTX 450 ALT	TTX 650
TTX 650 ALT	TTX 674	TTX 674 ALT	TTX 675
TTX 675 ALT	TTX 950	TTX 950 ALT	
<i>6404 RFID</i>	<i>6405 RFID</i>	<i>6406 RFID</i>	<i>6408 RFID</i>
<i>ALX 924 RFID</i>	<i>ALX 925 RFID</i>	<i>ALX 926 RFID</i>	<i>DPM 4 RFID</i>
<i>DPM 5 RFID</i>	<i>DPM 6 RFID</i>		

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the Avery RFID printers.

Interface Cables (Parallel, Serial, and USB)

These printers usually have a serial interface and a parallel interface. Some models support USB and have NIC Ports.

Parallel Interface (standard interface) - Using a standard parallel cable, plug the hardware license key into a LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) – Check with manufacturer for cable information. The hardware license key is not part of the serial interface since it must always be plugged into an LPT parallel port.

USB Interface (standard or optional interface) – Use a standard USB cable between the printer and computer (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Network Port – Included or optional on some printers.

Avery Options

Avery Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button. (Avery RFID options are also described in this section.)

Avery Label Specific Options

Label Options Section

<i>Print Speed</i>	The range of available print speed varies with the selected printer type. This setting controls the speed at which the stock moves during printing. The combinations of print speed and head temperature control the print quality of the label.
<i>Feed Speed</i>	This setting affects the speed at which the paper is fed when advancing over non-printing areas. This setting may affect printer throughput.
<i>Head Temp</i>	This allows you to control the darkness of the print.
<i>Job End Flag Label</i>	When this option is set, the last label printed in a batch is longer than the previous labels, signifying that it is the last label of the batch.
<i>Label Inverse</i>	Inverts the entire label, black prints as white, white space prints as black.

Printer Overrides Section

These settings override the Print Options Section in Printer Specific Options.

<i>Print Mode</i>	<ul style="list-style-type: none">◦ <i>Batch Mode</i> - The whole surface of the label is printable.◦ <i>Normal 1:1 Mode</i> - The first 18 mm of the label is not printable. The printing on the label is automatically shifted past the empty space.◦ <i>Real 1:1 Mode</i> - Total surface of the label is printable, and the label is retracted after each label.
-------------------	--

<i>Character Set</i>	Several printer languages are available that can print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character
<i>Gap Offset</i>	This command is for determining the beginning of the label when labels are printed with irregular gaps.
<i>Cut Interval</i>	This sets the number of labels to be printed before the stock is cut.
<i>Dispense Position</i>	This adjusts the distance the label is fed after printing.

Gap Overrides Section

This section, available only for the Avery 300 Offline printer, overrides the Printer Specific Options for Gap Offset and Gap Length.

<i>Enable Gap Options</i>	When checked, the following Gap settings are enabled:
	<ul style="list-style-type: none"> ◦ <i>Gap Offset</i> - This command determines the beginning of an irregular gap label.
	<ul style="list-style-type: none"> ◦ <i>Gap Length</i> – For continuous stock, this setting is used to add space between printed labels. The settings are in increments of 1 mm.

Avery RFID Options Section

These options apply to Avery RFID printers.

<i>Use Label or Printer Options</i>	This setting determines whether to use the options set in this section or those set in the Avery RFID Printer Specific Options. From this dialog, label setup options can be set when the Use Label RFID Options setting is selected.
<i>RFID Tag Type</i>	Select one of the supported tag types: Autodetect, EPC Class 0, Alien EPC Class 1, and Philips UCODE EPC 1.19 tags.

Note: If you are using an Avery RFID printer to print your label, from the Avery RFID PSO dialog, set RFID Tag Type to Autodetect which automatically determines the tag type. Otherwise, you must set the tag type from the Avery PSO dialog to match what is set in the Block Configuration dialog.

<i>Tag Position From Start of Label</i>	This is the distance of the chip from the leading edge. This defaults to 60 mm.
<i>Number of Write Retries per Label</i>	This setting determines the number of times to retry in case of initial failure.
<i>Number of Labels to Retry in Case of Tag Access Failure</i>	This setting determines the number of retries before displaying an error message and requiring user intervention.
<i>Verify</i>	This is set to Off, by default. When Verify is enabled, it detects whether the tag about to be written to is an Alien tag or not.

Avery Printer Specific Options

Media Options Section

<i>Stock Type</i>	<ul style="list-style-type: none">◦ <i>Die Cut</i> - Stock that has gaps between each label.◦ <i>Continuous</i> - No gaps, notches, or perforations between labels.
<i>Media Type</i>	<ul style="list-style-type: none">◦ <i>Thermal Transfer</i> (Ribbon) - Uses ribbon and non-heat sensitive label stock to print. The print head is activated as the label moves underneath, heating the ribbon material and melting it onto the label. To increase the quality of the print, decrease or increase the speed and/or the heat as necessary.◦ <i>Direct Thermal</i> (No Ribbon) - Uses heat sensitive label stock without the ribbon. The print head is activated as the label moves underneath heating the label stock and activating the heat sensitive material in the stock causing darkening of the material. To increase the quality of the print, decrease/increase the speed and/or heat as necessary.◦ <i>Ribbon Autoecon On/Off</i> - This command turns on the ribbon saver "auto economy" feature in supported printers. Printers that do not support this feature ignore the command. When this feature is turned on, the ribbon usage is economized by lifting when the minimum amount of white space is exceeded.
<i>Gap Offset</i>	This command determines the beginning of the label when printing labels with irregular gaps.
<i>Gap Length</i>	For continuous stock, this setting is used to add space between printed labels. The settings are in increments of 1 mm.
<i>Cut Interval</i>	This sets the number of labels to be printed before the stock is cut. This setting may yield poor results if you use a value that is not an even multiple of the Quantity and/or Duplicates value. For example: If Quantity = 2, Duplicates = 3, and Cut Interval = 2, your labels may print/cut in the following sequence: Label 1 Duplicate 1 Label 1 Duplicate 2 <CUT> Label 1 Duplicate 3 Label 2 Duplicate 1 <CUT> Label 2 Duplicate 2 Label 2 Duplicate 3 <CUT>
<i>Get Printer Status</i>	This returns a message providing status on the printer. If there is a problem communicating with the printer, a corresponding error message is displayed.

Avery RFID Printer Options are described above.

Print Options Section

<i>Do Not Send Options</i>	When this is checked, Loftware does not send any Printer Specific Options or Label Specific Options to the printer.
<i>Print Mode</i>	The availability of the Print Modes depends on the printer. <ul style="list-style-type: none">◦ <i>Batch Mode</i> - The whole surface of the label is printable.◦ <i>Normal 1:1 Mode</i> - The first 18 mm of the label are not printable. The printing on the label is automatically shifted past the empty space.◦ <i>Real 1:1 Mode</i> - Total surface of the label is printable, and the label is retracted after each label.
<i>Character Set</i>	Several printer languages are available to print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character.

Dispense Options Section

<i>Dispense Mode</i>	This is only for printers with the dispenser attachment. <ul style="list-style-type: none">◦ <i>Batch Mode</i> - The entire label is not printable; the label is not retracted after feeding to the Dispense position.◦ <i>1:1 Mode</i> - The entire label is printable since the label is retracted before printing the next label.
<i>Dispense Position</i>	Adjusts the distance the label is fed after printing.
<i>Use Single Start function</i>	Only one label is printed at a time. Printing is then suspended until the correct action has been taken. The required action depends on the settings of the printer, and is either the removal of the presented label or the use of a foot pedal.

Graphics Options Section

<i>Store Images</i>	This setting overrides the normal image behavior and always stores all images.
<i>Images as Binary</i>	All images are sent to the printer in binary format.

Custom Command Section

The Custom Command option is used when a non-typical printing function is required. Refer to the printer's programming manual for commands that may be used.

<i>Send to Printer</i>	This instructs the Loftware Label Manager system on when to send the EasyPlug Command.
------------------------	--

Note: Commands are printer model and firmware specific. Contact the appropriate printer representative for programming language questions.

C.Itoh Information

This section provides information specific to the C.Itoh family of printers. Supported printers include:

C4	C4 TT	S4	S4 400dpi
S4 Plus	T4	T4 300dpi	

These C.Itoh printers use the same language as Datamax. Please refer to the Datamax Section for error messages and other information. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Citizen Information

This section provides information specific to the Citizen family of printers. The supported printers include:

CLP 1001	CLP 2001	CLP 4081	CLP 4121	CLP 6001	CLP 6002
CLP 6401	CLP 7001	CLP 7002	CLP7201E	CLP 7202E	CLP 7401

These printers use the same language as the Datamax printers; therefore, see the next section for options, error messages, and other information regarding Citizen printers. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Datamax Information

This section provides information specific to the Datamax family of printers, as well as C.Itoh Printers. (C.Itoh printers use the same language as Datamax. See C.Itoh Printers) section for supported printers.) RFID Printers are italicized.

The Datamax printers include:

400	430	600	800	A-4212
A-4310	A-4408	A-4606	A-6212	A-6310
Allegro	Allegro 2	E-4203	E-4204	E-4304
H-4212X	H-4310X	I-4206	I-4208	I-4210
I-4212	I-4308	I-4406	I-4604	M-4206
M-4208	M-4306	Ovation	Ovation 2/3	PE4X
Prodigy	Prodigy 6.5	Prodigy Max	Prodigy Max 300	Prodigy+
ST-3210	ST-3306	Titan 6200	W-6208	W-6308
W-8306	XL	<i>A-4212 RFID</i>	<i>A-4310 RFID</i>	<i>A-4408 RFID</i>
<i>A-4606 RFID</i>	<i>A-6212 RFID</i>	<i>A-6310 RFID</i>	<i>H-4212X RFID</i>	<i>H-4310X RFID</i>
<i>I-4210 RFID</i>	<i>I-4212 RFID</i>	<i>I-4308 RFID</i>	<i>I-4406 RFID</i>	<i>I-4604 RFID</i>

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the Datamax RFID printers.

Interface Cables (Parallel, Serial, and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into a LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Use an RS232-C null modem cable. The hardware license key is not part of the serial interface since it must always be plugged into a LPT parallel port. Some Datamax may require other serial configurations.

USB Interface (standard or optional interface) – Use a standard USB cable between the printer and computer (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Supported Features

Image Support - Images are downloaded and stored in the printer's image memory. Loftware Label Manager "remembers" images that are sent to the printer and only resends an image if the image is changed.

Supported Fonts - Datamax printers support a variety of native fonts and certain printers support TrueType fonts as well. Consult your printer manual for the specific native and TrueType font information.

Printer Control and Configuration - The Loftware Label Manager Design application allows you to configure printer settings that are saved in the label format using *File | Media Setup*.

Individual workstation printer settings may be configured using *File | Devices* from within the Design or any of the Print applications: On Demand, Range.

Many of the settings in the printer do not take effect until the printer is re-booted. In the device *Options* dialog box, pushing the *Send To Printer* button sends the currently selected options to the printer. All Label-Specific options are sent to the printer every time a label is printed.

Datamax Options

Datamax Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button.

Datamax Label Specific Options

Print Speed

The range of available print speed varies with the selected printer type. This setting controls the speed at which the stock moves when printing. The combinations of print speed and head temperature control the print quality of the label.

<i>Slew Rate</i>	This setting affects the speed at which the paper is fed when advancing over non-printing areas. This setting may affect printer throughput.
<i>Backup Speed</i>	This controls the rate of label movement during backup positioning for start of print, cutting, or present distance.
<i>Head Temperature</i>	This allows you to control the darkness of the print. 10 is nominal; setting the temperature higher than 10 causes the label to print darker. Temperature settings lower than 10 cause the label to print lighter.

Label Overrides Section

This section contains options used for Cutters, Label Presentation, and Symbol Sets.

Advanced Options Section

<i>Symbol Set</i>	The Symbol Set option selects the scaleable font's symbol set. Consult the appendix section of your printer manual for a description of the character set.
<i>Double-byte Symbol Set</i>	This option allows you to choose a variety of Double-byte symbol sets, assuming your printer has the capability.
<i>Clear Memory Module</i>	When checked, the memory module is cleared each time a label format is sent. If unchecked, the memory module is not cleared before each label format is sent, thus potentially saving time. This option should only be used if enough memory is present to allow the module to remain uncleared when a format is sent.
<i>Override Printer Setup</i>	When checked, this allows you to override the Clear Memory setting in the PSO. This may be useful if you have a label that uses a lot of memory, and clearing the memory module is important.

WARNING! *Printing Blank Labels?* If you are printing labels in thermal transfer mode, and blank labels are advancing out of the printer, try increasing the head temperature in Label Options (F5) and test print your label again. This symptom may occur if the ribbon being used requires hotter head temperatures to transfer the ink from the ribbon onto the paper substrate.

Datamax Printer Specific Options

Label Options Section

<i>Supply Type</i>	<ul style="list-style-type: none"> ◦ <i>Die Cut</i> - Stock that has gaps between each label. ◦ <i>Continuous</i> - No gaps, notches, or perforations between labels. ◦ <i>Mark Stock</i> - Black mark found opposite print side.
<i>Buffer Mode</i>	<ul style="list-style-type: none"> ◦ <i>Double</i> - Selecting the double buffer mode instructs the printer to erase and format only incremental fields that have changed. ◦ <i>Single</i> - Selecting single buffer mode instructs the printer to erase and format both incremental fields and the rest of the label format. <p>This feature is only active when the labels being printed are less than half the maximum size of the printer's print buffer.</p>
<i>Ribbon Saver</i>	<p>This command turns the ribbon saver feature on in supported printers. The command is ignored by printers that do not support this feature. When the ribbon saver feature is turned on, the ribbon saver automatically lifts when the minimum amount of white space is exceeded.</p>

Forms Control Section

Settings for Tear Off, Form Edge, and Label Gap are in dots. Use the dots per inch (dpi) for your printer to find the proper value. Datamax settings increment each 1/100 of an inch.

Present Distance

This specifies an additional amount to advance the label after printing.

Tear Off (Label Retract)

The Tear Off control enables the label retract feature of the printer. The printer advances the label “tear off” dots after the label is printed so the label can be torn off. It automatically retracts the label back to the proper start position before printing the next label.

The length should be set longer than the form edge.

Form Edge (Top of Form)

The Form Edge control determines where printing begins on your label. If you want the printer to print nearer to the leading edge of the label, decrease the form edge offset. If you want to move the start of print position away from the leading edge of the label (into the body of the label), increase the form edge offset.

Note: In order for the new form edge settings to take effect, you must download the format 2 or 3 times. This is an idiosyncrasy of Datamax printers.

Label Gap

For continuous stock, this setting is used to add space between printed labels. The settings available are in increments of 1/100 of an inch.

Column Offset

This command allows horizontal adjustment of the point where printing begins. This feature is useful when a single format must be printed on several different types of labels that already have printed information.

Row Offset

This command allows vertical adjustment of the point where printing begins. This feature is useful when a single format must be printed on several different types of labels that already have printed information.

Label Applicator

Enables integration with equipment that picks the label from the printer and places it on a package.

Label Present

The printer presents each label and waits for the label to be removed before continuing. While in “label present” mode, Loftware Label Manager receives status information from the printer indicating that a label is being sensed by the sensor and the printer does not print labels if a label is detected.

Internal Batch Mode

Internal batch mode enables communication between the Datamax printers and a dumb terminal. When internal batch mode is enabled, the Datamax printer directly sends information that is displayed on the terminal.

Cutter Engaged

This option turns the cutter on or off. Consult your printer manual for hardware availability.

Download Truetype Fonts

This option instructs Loftware Label Manager to download TrueType fonts to the Datamax printer’s memory module. If this option is not enabled (or is not available for your model) and a TrueType font is selected, the TrueType font is sent to the Datamax printer in the form of a graphic. To download TrueTypes into the printer’s memory, you must have the appropriate memory module and firmware versions, which are 2.01 or higher. Consult your manufacturer’s manuals for details.

Note: The Download TrueType Fonts function when enabled in Printer Setup does not download TrueType fonts into the printer's memory module when test-printing label formats from Loftware Label Manager. When this feature is enabled and TrueType fonts are defined on your label, test printing is extremely slow. Loftware suggests disabling the "Download TrueTypes" box temporarily while designing and test printing labels. This downloads TrueTypes as images, speeding up the test printing process.

Once the label format is designed and you are ready to start using Loftware's On-Demand or Range Printing modules, go back into the printer setup dialog box and enable TrueTypes. The very first time you print a label format using TrueTypes in one of these modules, the initial download time is extended while fonts are downloaded to the printer's memory module. Subsequent downloading of these fonts does not occur again until a new label format is requested.

Note: Refer to your printer manual to determine whether a specific printer has native TrueType font downloading capabilities.

Set Label Length

When enabled, the label length is sent to the printer. The length of the label is the height or width value specified in Label Specifications section of the Label Setup dialog box. Whether height or width is used is dependent on print orientation.

Pre 2.01 Firmware

Changes in firmware affect the commands that the printer accepts. Line properties including boxes and borders are affected. Check this box if your Firmware is Pre 2.01.

New Firmware

Checked by default. Allows for larger line widths in bar codes.

Advanced Options Section

Memory Module

The Memory Module option is used to specify which memory module(s) to download formats, graphics, and fonts to. The choices are: None, Module A, Module B, or Module C (Emulation Mode). Prodigy Plus Printers, for example, have an A or B Memory Module Card Slot in the front of the printer. Citizen Printers have an internal Memory Module C. If you have a Citizen Printer that you are running in Prodigy Plus Emulation, you would choose Module C (Emulation Mode) from the drop down list. Consult your printer manual or representative for more information about what modules are available for each printer model.

Clear Memory Module

When checked, the memory module is cleared each time a label format is sent. If unchecked, this prevents the memory module from being cleared before each label format is sent, thus potentially saving time. This option should only be used if enough memory is present to allow the module remain uncleared when a format is sent.

Symbol Set

The Symbol Set option selects the scaleable font's symbol set. Consult the appendix section of your printer manual for a description of the character set.

Scaleable Font Processor

This allocates scaleable font processor memory on the printer, but only if the option "send to printer" is checked. This option works with the XL, Ovation 2, Datamax Prodigy Max, Datamax Prodigy Max 300dpi, DMX 300, 800 and PE42.

Custom Command Section

The Custom Command option is used when a non-typical function is required when printing. Refer to the printer's programming manual for commands that may be used.

Note: Commands are printer model and firmware specific. Contact the appropriate printer representative for programming language questions.

6

RFID Options Section

Retry Attempts This setting determines the number of times to retry in case of initial failure.

Datamax Printer Capabilities and Limits

Faster Throughput

For faster throughput always use a parallel port interface.

Printed Bar Code Does Not Match the Design

It is possible to define a combination of attributes, such as line width, ratio, etc., that the printer cannot produce, or might print in one orientation but not another. Under these conditions, the printer may print the "closest possible" bar code. This usually occurs when you define a bar code with line width 1. The printer sometimes "promotes" this to a line width 2 bar code, resulting in a printed bar code that is twice as long as desired.

Datamax Incrementing/Decrementing Fields

When the printer is capable of doing the incrementing/decrementing internally, it is instructed to do so. This is called "Native Mode." When printing in Native Mode, control returns to the PC almost immediately.

Loftware Label Manager does incrementing/decrementing in software when the printer cannot do it internally and sends down a different set of data for each label. This is called "Extended Mode." In Extended mode, the Printing dialog box shows the line "Printing Label x of y" and control does not return to the PC until the entire series of labels is printed.

Datamax: Label Size

The label size is used as a frame of reference. When you rotate your label, or when you rotate the printing of a label, it is imperative that Loftware Label Manager Design knows the exact size of the stock on which you are printing.

Datamax Error Messages

	Printer Turned Off	Cable Disconnected	No Stock	Print Head Up
LPT	Error message. Does not let you retry, label does not print.	Error message. Does not let you retry, label does not print.	Error message. Does not let you retry, label does not print.	Error message. Lets you retry, the label prints when the error is corrected.
COM	Error message. Lets you retry so the label prints	Error message. Lets you retry so the label prints.	Error message. Lets you retry so the label prints.	Error message. Lets you retry so the label prints.
USB	Received 'port not found' error. USB port not shown in Port combo of Printer Connection	Error Message. Printing starts when cable reconnected.	Error Message. Printing resumes when stock added.	Received 'port not found' error. Label prints when head is put down.
Spooled Locally	No Loftware printer error but has a Windows printer error. Lets you retry, the label prints.	No Loftware printer error but has a Windows printer error. Lets you retry, the label prints.	No Loftware printer error but has a Windows printer error. Lets you retry, the label prints.	No Loftware printer error but has a Windows printer error. Lets you retry, the label prints.
Spooled to Shared	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.
Spooled to PrintServer	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.
Direct IP	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.	No error message. Prints the labels when the error is corrected.

Eltron Information

This section provides information specific to the Eltron family of printers. The supported Eltron printers include:

2044/46	2242	2348	2542	2622
2642	2722	2742	2746	2824
2844	3642	3742	Companion+	Eclipse
LP Plus	Orion	Strata	Transport	UPS 2348
UPS 2442	UPS 2443	UPS 2543		

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Interface Cables (Parallel, Serial and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into a LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Use an RS232-C null modem cable. The hardware license key is not part of the serial interface since it must always be plugged into a LPT parallel port.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and computer (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Supported Features

Image Support - Images are downloaded and stored in the printer's image memory. Loftware Label Manager "remembers" images that are sent to the printer and only resends an image if the image is changed.

Supported Fonts - Some of the native fonts supported by Eltron printers are:

8X12, 10X16, 12X20, 14X24, and 32X48

TrueType fonts are downloaded as graphics on the Eltron printers.

Printer Control and Configuration

The Loftware Label Manager Design application allows you to configure global printer settings, which are saved in the label format using *File | Media Setup | Label Options*.

Individual workstation printer settings may be configured using *File | Devices | Options* from within the Design or any of the Print applications: On Demand, Range.

Many of the settings in the printer do not take effect until the printer is re-booted. In the *Device Options* dialog box, pushing the *Send To Printer* button sends the currently selected options to the printer. All Label Options are sent to the printer every time a label is printed.

Eltron Options

Eltron Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button.

Eltron Label Specific Options

Label Options Section

Print Speed

The range of available print speeds varies with the selected printer type. This setting controls the speed at which the paper is fed when printing. The combinations of print speed and head temperature control the print quality of the label. The range of available print speeds varies with the selected printer type.

<i>Print Direction</i>	This setting affects the orientation at which the label is printed. The Eltron printers can internally rotate the label 180 degrees. When Top is selected, the printer begins printing at the top of the label. When bottom is selected, the label is rotated 180 degrees and printing begins at the bottom.
<i>Head Temperature</i>	Allows you to control the darkness of the print. 5 is nominal, setting the temperature higher than 5 causes the label to print darker. Setting the temperature to lower than 5 causes the label to print lighter. Values from 0 to 7 for 2122/2142 and 0 to 15 for 2242/2044/2046/2642.
<i>Form Number</i>	Eltron printers have the ability to store multiple forms in memory. In order to store multiple forms, a unique name must be generated for each form. This option is used to provide a unique form name.

WARNING! Printing Blank Labels? In some instances while printing labels in thermal transfer mode, blank labels advance out of the printer. If this happens, try increasing the head temperature in Label Specific Options (F5) and test print your label again. This symptom may occur if the ribbon being used requires hotter head temperatures to transfer the ink from the ribbon onto the paper substrate.

Label Cut Options Section

<i>Cutter</i>	Use Printer Cut Options uses Cut Options set in the Printer Specific Options section. When enabled, an optional label cutter is set to cut a label after printing using settings specified in this dialog.
<i>Cut Every</i>	Allows the cutter to skip a given quantity of labels before cutting.
<i>Cut Position</i>	This command is sent to a printer to provide precise cut placement. The default is 100 dpi.

Eltron Printer Specific Options

Settings are in dots. Use the dots per inch (dpi) for your printer to find the proper value. For example, if your printer has 203 dpi and you want to set a skip distance of 1 inch, specify a value of 203 for the skip distance.

Label Options Section

<i>Stock Type</i>	<ul style="list-style-type: none"> ◦ <i>Direct Thermal</i> (No Ribbon) - Uses heat sensitive label stock without the ribbon. The print head is activated as the label moves underneath heating the label stock and activating the heat sensitive material in the stock causing darkening of the material. To increase the quality of the print decrease/increase the speed and increase/decrease the heat as necessary. ◦ <i>Thermal Transfer</i> (Ribbon) - Uses ribbon and non-heat sensitive label stock to print. The print head is activated as the label moves underneath, heating the ribbon material and melting it onto the label. To increase the quality of the print decrease/increase the speed and increase/decrease the heat as necessary.
<i>Supply Type</i>	<ul style="list-style-type: none"> ◦ <i>Die Cut</i> - Stock that has gaps between each label. ◦ <i>Continuous</i> - No gaps, notches, or perforations between labels. ◦ <i>Mark Stock</i> - Black mark found opposite print side.

<i>Gap Length</i>	The space in between labels. When printing on continuous stock, this setting can be used to add space between printed labels.
<i>Offset Length</i>	This is a setting found on Butterfly Labels. It sets the length between the top edge of the label, and the indented portion of the label. The Offset Length is set in dots per inch.

Reference Point Section

<i>X Coordinate / Y Coordinate</i>	These values are measured in dots. This command is used to move the reference point for the X and Y-axes. The reference point command functions similarly to the Label Home command found in File Media Setup. Default reference points vary depending upon whether the selected print direction is top or bottom.
------------------------------------	--

Options Section

<i>Set Label Width</i>	This command should be set on when labels narrower than the print head are printed. If the label width equals the print head width, you may leave Set Label Width off and the printer automatically centers the printing of the label.
<i>Tear Off Mode</i>	The tear off mode is the default mode.
<i>Form Backup</i>	This command instructs the printer to retract the label before printing.
<i>Sensor Reverse</i>	This option reverses the Through Sensor Operation, which interprets a blockage of light as a gap. This option allows the through sensor to be used when printing transparent labels with a black stripe backing.
<i>Dispense Sensor</i>	When enabled, the printer presents each label and waits for the label to be removed before continuing. On the P2242 printer, the feed button must be pressed to print the next label. Available on Orion, Strata, and P2242 only.
<i>Dispense Tap</i>	When enabled, the printer presents each label and waits for the feed switch to be pressed before printing the next label. This mode is commonly used when printing multiple copies of liner-free labels. Available only on the P2242.
<i>Batch Print & Cut</i>	When enabled, this option uses the “Print Quantity” and “Copies” values to control the cutter operations. The cut instruction is executed when a batch of jobs has completed printing.
<i>Enable Dump Mode</i>	When enabled, the printer is set in diagnostic dump mode. Available on the P2242 only.
<i>IRDA Interface</i>	Enables optional IRDA Interface. This option is only available on the P2242.

Cut Options Section

<i>Label Cutter</i>	Enables an optional label cutter. When enabled, the cutter is set to cut a label after printing.
<i>Cut Every</i>	The “Cut Every” settings range from 1 label to 250 + labels. The label is cut after the number specified. For example, if “2” is specified, the label is cut after every 2 labels.
<i>Cut Position</i>	This command is sent to the printer to provide precise cut placement. The default is 100 dpi.

Memory Allocation Section

<i>Formats</i>	If you have a very large number of fields on your label, you may need to increase this value; otherwise, the default of 5k should be fine.
<i>Graphics</i>	To use images on your labels, you may need to increase the memory allocated for Graphics. This allows the printer to store the image files sent to it by Loftware Label Manager. If the value set is too small, Loftware Label Manager displays an error message.
<i>Image Buffer</i>	The image buffer memory is the area where the active print image is temporarily stored. To calculate the exact memory needed using the following formula: Printer Width = 2" - Label height in inches x 12 KB Printer Width = 4" - Label height in inches x 22 KB

Note: You cannot allocate more memory than is installed in the printer.

Advanced Options Section

<i>Character Set</i>	This command selects a character set for printing. Consult the appendix section of your printer manual for a more complete description of supported character sets.
----------------------	---

Custom Command Section

The custom command option sends printer commands otherwise not available in the Loftware Label Manager dialog boxes.

Eltron Printer Capabilities and Limits

<i>Faster Throughput</i>	For faster throughput always use a parallel port interface.
<i>Printed Bar code Does Not Match the Design</i>	It is possible to define a combination of attributes, such as line width, ratio, etc. that the printer cannot produce, or might print in one orientation but not another. Under these conditions, the printer may print the "closest possible" bar code. This usually occurs when you define a bar code with line width 1. The printer sometimes "promotes" this to a line width 2 bar code, resulting in a printed bar code that is twice as long as desired.
<i>Eltron Incrementing/Decrementing fields</i>	When the printer is capable of doing the incrementing / decrementing internally, it is instructed to do so. This is called Native Mode. In Native Mode, control returns to the PC almost immediately.
	Loftware Label Manager does incrementing/decrementing in software when the printer cannot do it internally and sends down a different set of data for each label. This is called "Extended Mode." In Extended mode the Printing dialog box shows the line "Printing Label x of y" and control does not return to the PC until the entire series of labels is printed.
<i>Label Size</i>	The label size is used as a frame of reference. When you rotate your label, or when you rotate the printing of a label, it is imperative that Loftware Label Manager design knows the exact size of the stock on which you are printing.

Eltron Error Messages

	Printer Turned Off	Cable Disconnected	No Stock	Print Head Up
LPT	Error message. Does not let you retry, the label is not printed.	Error message. Does not let you retry, the label is not printed.	Error message. Does not let you retry, the label is not printed.	Error message. Allows you to retry, the label prints.
COM	Not Tested	Not Tested	Not Tested	Not Tested
USB	Received 'port not found' error. USB port not shown in Port combo of Printer Connection	Error Message. Printing starts when cable reconnected.	Error Message. Printing resumes when stock added.	Error Message. An inconsistent result with printing when head is put back down.
Spooled Locally	No Loftware error message, but displays Windows error message. Allows retry, labels print.	No Loftware error message, but displays Windows error message. Allows retry, labels print.	No Loftware error message, but displays Windows error message. Allows retry, labels print.	No Loftware error message, but displays Windows error message. Allows retry, labels print.
Spooled to Shared	No Loftware error message but has Windows error message. Allows retry so the labels print.	No Loftware error message but has Windows error message. Allows retry so the labels print.	No Loftware error message but has Windows error message. Allows retry so the labels print.	No Loftware error message but has Windows error message. Allows retry so the labels print.
Spooled to Print Server	No error message. All labels print after the printer is turn back on.	No error message. All labels print after the printer is reconnected.	No error message. All labels print after the printer is re-stocked.	No error message. All labels print after the print head is put down.
Direct IP	No error message. All labels print after the printer is turn back on.	No error message. All labels print after the printer is reconnected.	No error message. All labels print after the printer is re-stocked.	No error message. All labels print after the print head is put down.

EXE Information

Loftware supported EXE printers include:

MR400	MR400e	MR410	MR410e
-------	--------	-------	--------

These printers use the same language as Sato Printers. Please refer to the Sato Section for error messages and other information regarding EXE printers. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Fastmark Information

This printer guide section provides information specific to the Fastmark family of printers. Since these printers use both Datamax and Eltron Languages, the following table shows which printer section to look under regarding PSO's, error messages, and other information. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

For printers on this table, refer to the Datamax Printers section.

FM402 PPLA	FM403 PPLA	FM4402 PPLA
FM4602 PPLA	FM4603 PPLA	FM6602

For printers on this table, refer to the Eltron Printers section.

FM402 PPLB	FM403 PPLB	FM4402 PPLB
FM4602 PPLB	FM4603 PPLB	

Fox IV Information

This section provides information specific to the Fox family of printers. Since these printers use Sato, Zebra, Datamax, Intermec and Printronix Printer Languages, the following table helps to know which printer section to look under regarding PSO's, error messages, and other information. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Sato OEM	Datamax OEM
FOXIV Model 6159	FOXIV Model 2000
FOXIV Model 6160	FOXIV Model 2000 300dpi
FOXIV Model 6185	FOXIV Model 3000
FOXIV Model 6190	FOXIV Model 3600
Zebra OEM	Intermec OEM
FOXIV Model 5113	FOXIV Model 4051 203dpi
FOXIV Model 5143	FOXIV Model 4051 406dpi
Printronix OEM	
FOXIV Model 5173	Printronix OEM
FOXIV Model 6210	FOXIV Model 7002
FOXIV Model 6270	FOXIV Model 7003
RFID Printers Printronix OEM	
<i>FOXIV SLPA 7204e RFID</i>	<i>FOXIV SLPA 7304e RFID</i>

See Printronix Options page for LSO and PSO settings.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the FOXIV RFID printers.

IBM Information

This printer guide section provides information specific to the IBM family of printers. **RFID Printers** are italicized in shaded cells. The supported IBM printers include:

IBM 4400-004 (203 dpi)	IBM 4400-004 (300 dpi)	IBM 4400-006 (203 dpi)
IBM 4400-006 (300 dpi)	IBM 4400-008 (203 dpi)	IBM 4400-008 (300 dpi)
Infoprint 6700 Model 5504-R40 (203 dpi)	Infoprint 6700 Model 5504-R40 (300 dpi)	Infoprint 6700 Model 5504-R60 (203 dpi)
Infoprint 6700 Model 5504-R60 (300 dpi)	Infoprint 6700 Model 5504-R80 (203 dpi)	Infoprint 6700 Model 5504-R80 (300 dpi)
<i>Infoprint 6700 Model 5504-R40 (203 dpi) RFID</i>	<i>Infoprint 6700 Model 5504-R40 (300 dpi) RFID</i>	<i>Infoprint 6700 Model 5504-R60 (203 dpi) RFID</i>
<i>Infoprint 6700 Model 5504-R60 (300 dpi) RFID</i>	<i>Infoprint 6700 Model 5504-R80 (203 dpi) RFID</i>	<i>Infoprint 6700 Model 5504-R80 (300 dpi) RFID</i>

These printers use the same language as Printronix Printers. Please refer to the Printronix Section for error messages and other information regarding IBM printers. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the IBM RFID printers.

Imtec Information

This section provides information specific to the Imtec family of printers. Imtec Printers utilize the same Printer and Label Options as some of the other printers described in this appendix. Therefore, the following table lists Loftware's Imtec printer models, and the corresponding label/printer options used. The defaults are different, but the options and dialog boxes are the same. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page. For the printers listed below, consult the section on Zebra printers.

Imtec Apply Pro w/90xiII	Imtec Value Pro w/140xiII
Imtec Apply Pro w/90xiII (600 dpi)	Imtec Value Pro w/3240
Imtec Apply Pro w/140xiII	Imtec Protector w/90xiII
Imtec Apply Pro w/170xiII	Imtec Protector w/90xiII (600 dpi)
Imtec Apply Pro w/4220E	Imtec Protector w/140xiII
Imtec Value Pro w/90xiII	Imtec Protector w/170xiII
Imtec Protector w/3440	

Intermec Information

This section provides information specific to the Intermec family of printers. RFID Printers are italicized in shaded cells. Supported Intermec printers include:

3100	4000	4100
4406	4630	8625/38
8635/36	8646	Easy Coder 3240
Easy Coder 3400	Easy Coder 3400B	Easy Coder 3400C
Easy Coder 3400D	Easy Coder 3400E	Easy Coder 3440
Easy Coder 3600	Easy Coder 4400	Easy Coder 4400B
Easy Coder 4400C	Easy Coder 4400D	Easy Coder 4420A/B
Easy Coder 4420e	Easy Coder 4440A/B	Easy Coder 4440e
Easy Coder 4830	Easy Coder 501E	Easy Coder 501XP
Easy Coder 601E	Easy Coder 601XP	Easy Coder 7421
Easy Coder 7422	Easy Coder 91	Easy Coder C4
Easy Coder E4	Easy Coder F2	Easy Coder F4
Easy Coder PC4 (EPL)	Easy Coder PC41 (IPL)	Easy Coder PD4 (203 dpi)
Easy Coder PD4 (300 dpi)	Easy Coder PD41 (FP)	Easy Coder PD41 (IPL)
Easy Coder PF4i (FP)	Easy Coder PF4i (IPL)	Easy Coder PM4i (FP)
Easy Coder PM4i (IPL)	Easy Coder PX4i (FP)	Easy Coder PX4i (IPL)
Easy Coder PX6i (FP)	Easy Coder PX6i (IPL)	<i>Easy Coder PM4i RFID (FP)</i>
<i>Easy Coder PM4i RFID (IPL)</i>		

Refer to the RFID Devices and Tag Types section for information on tag types supported by the Intermec RFID printers.

Interface Cables (Parallel, Serial and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into a LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Use an RS232-C null modem cable. The hardware license key is not part of the serial interface since it must always be plugged into a LPT parallel port.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and computer (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Supported Features

Image Support - Images are downloaded and stored in the printer's UDC (image) memory. Loftware Label Manager "remembers" images that are sent to the printer and only resends an image if the image is changed.

Supported Fonts

Name	Notes
5x7 (1)	Magnify 1 to 90 horz. and vert.
7x9	Magnify 1 to 90 horz. and vert.
7x11	Magnify 1 to 90 horz. and vert.
10x14	Magnify 1 to 90 horz. and vert.
8 Point	Magnify 1 to 33 horz. and vert.
12 Point	Magnify 1 to 20 horz. and vert.
20 Point	Magnify 1 to 20 horz. and vert.
OCR A	Magnify 1 to 33 horz. and vert.
OCR B	Magnify 1 to 33 horz. and vert.
Outline Swiss (2)	0.005" to 2.94" (<1 to 212 points)
Outline Swiss Bold (3)	0.005" to 2.94" (<1 to 212 points)
Dutch Roman (3)	0.005" to 2.94" (<1 to 212 points) <u>3240 3440 prtrs only</u>
Pointable (4)	Point sizes 8, 10, 12, 16, 20, 24; Magnify 1 to 20 times
Pointable Bold (4)	Point sizes 6, 8, 10, 12, 16, 20, 24; Magnify 1 to 20 times

Notes: (1) The 5x7 font is not available for the 4400 and 4406 printers. (2) For the 3400 printer, firmware version 1.2 or higher and extended memory are required to access the Outline Swiss font. For the 4100 printer, firmware version 2.4 or higher and extended memory are required to access the Outline Swiss font. (3) The Outline Swiss Bold and Dutch Roman fonts are currently not available with the 3100 printer. (4) The Pointable and Pointable Bold fonts are currently available for the 4400C, 3400B, 3600 and 3240 printers.

Intermec - Printer Control and Configuration

The Loftware Label Manager Design application allows you to configure global printer settings that are saved in the label format using *File | Media Setup* and *File | Media Setup | Label Specific Options*.

Individual workstation printer settings may be configured using *File | Devices* from within the Design or any of the Print applications: On Demand, Range.

Many of the settings in the printer do not take effect until the printer is re-booted. In the device options dialog box, pushing the *Send Options* button sends the currently selected options to the printer. All label-specific options are sent to the printer every time a label is printed.

For 440x users, the *File | Media Setup | Label Specific Options* duplicate some of the functionality of the printers control panel. For 3400 and 4100 users, Loftware Label Manager provides the only way to configure many of the settings in the printer.

Intermec Options

Intermec Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button.

Intermec Label Specific Options

<i>Format Number</i>	Specifies the areas of RAM in which the label format is to be stored.
<i>Print Speed</i>	The range of available print speeds varies with the selected printer type. Note that the printer may user a slower print speed than you specify in order to maintain print quality.
<i>Head Temperature</i>	Head Temperature allows you to control the darkness of the print. 0 is nominal, setting the temperature higher than 10 causes the label to print darker. Settings lower than 10 cause the label to print lighter.
<i>Media Sensitivity</i>	This number specifies the amount of heat required by the printhead to image a label. Look at the sensitivity label located on the label stock, and check the last three digits of the 15-digit number. These three numbers stamped on the label give you the number you use for this setting.
<i>Cut Interval</i>	This value is used to determine how many labels to print before cutting. This option is only used when "Use Label Specific Options Cut Interval" is enabled.

Note: Loftware Label Manager now defaults to using the *Cut Immediate* command (<SO>) in conjunction with disabling the cutter (<SI>c0) per Intermec recommendations. Example: The cutter is enabled, (<SI>c1) and the printer prints a quantity of 5. The job is native, and the printer cuts after each label. The only way to enable the cutter to cut after a certain number of labels is to either:

1. Set [INT44xx]CutImmediate=0

2. Use custom command of <SI>c1 in the PSOs.

Using #2 and unchecking Force Extended should allow the cutter to cut after the print job.

Read Knowledge Base article #42708 on the Loftware website for more information.

<i>Use Label Specific Options Cut Interval</i>	Enabling this feature disables any cutting options enabled in the Printer Options section under Label Handling. All cutter system information is overridden and stored directly in the label format.
<i>Use Direct Graphics</i>	Enables Direct Graphics mode on printers that support this option. The download time of the image is reduced, but images are sent for each label. This eliminates the graphic size limitations that are normally encountered when storing graphics in non-volatile RAM. The only size limitation when using direct graphics is the amount of memory installed on the printer.
<i>Media Sensitivity Guide</i>	The sensitivity for a particular type of media and ribbon is critical to achieving high quality printing. If the Media Type you are using is listed, select it, and then press "Apply" to achieve the recommended sensitivity setting.

Intermec Printer Specific Options

Advanced Options Section

<i>Language</i>	Several printer languages are available to print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character.
<i>Enable IBM Translation</i>	Enabling IBM Translation allows IBM compatible characters to replace standard ASCII characters based on the current printer language selected.
<i>Custom Command</i>	The custom command option sends printer commands otherwise not available in the Loftware Label Manager dialog boxes. For example, to switch an advanced printer to 86xx mode, send the custom command: <ESC>c

Label Options Section

<i>Media Type</i>	<ul style="list-style-type: none">◦ <i>Thermal Transfer</i> (Ribbon) - Uses ribbon and non-heat sensitive label stock to print. The print head is activated as the label moves underneath heating the ribbon material and melting it onto the label. To increase the quality of the print decrease/increase the speed and increase/decrease the heat as necessary.◦ <i>Direct Thermal</i> (No Ribbon) - Uses heat sensitive label stock without the ribbon. The print head is activated as the label moves underneath heating the label stock and activating the heat sensitive material in the stock causing darkening of the material. To increase the quality of the print decrease/increase the speed and increase / decrease the heat as necessary.
<i>Label Stock</i>	<ul style="list-style-type: none">◦ <i>Die Cut</i> - Stock that has gaps between each label◦ <i>Continuous</i> - No gaps, notches, or perforations between labels◦ <i>Mark Stock</i> – Stock with a black mark found opposite print side

Label Handling Section

<i>Batch</i>	Normal printing mode; labels are continuously printed and fed out of the printer.
<i>Applicator</i>	A specialty device that is integrated with the printer that allows labels to be picked up from the printer and placed on a product. Typical for assembly line production.
<i>Self-Strip</i>	Self-strip handling requires that the stock in the printer be properly fed through the self-strip attachment on the printer. Consult your Intermec manual or service technician for further assistance. While in self-strip mode, the printer presents each label and waits for it to be removed before continuing. The printer does not print labels if there is a label at the strip pin.

Cut Options Section

<i>Cut or Label Cutter</i>	These options require that a cutter be installed on the printer. With some Intermec printers, specifically the Intermec 4400, you may have to set certain options on the printer.
<i>Cut Every</i>	Allows the cutter to skip a given quantity of labels before cutting.
<i>Cut Position</i>	This command is sent to a printer to provide precise cut placement. The settings range from 70 to 130 dpi, the default is 100 dpi.

Forms Control Section

Settings are in dots. Use the dots per inch (dpi) for your printer to find the proper value. For example, if your printer has 203 dpi and you want to set a skip distance of 1 inch, specify a value of 203 for the skip distance.

<i>Top of Form</i>	This setting determines how close to the leading edge of the label printing occurs. Valid values are -20 to 4000, with 20 as the default setting. If you need to move the printing closer to leading edge of the printer, lower the value. If you need to move the printing away from the leading edge of the printer, choose a higher value. This setting is usually only critical when you are using small labels.
<i>Max Label Length</i>	Maximum label length increases the allowed printing length of the label. Valid values are 200 to 4800 dots. For example, a 203 dpi printer allows you to set a value from .5" to 24". Setting maximum label length to 2400 allows you to print a 12" label on an advanced Intermec printer. The default for maximum label length is 1000 dots.
<i>Image Bands</i>	The Image band setting is used by the printer to decide how much of the label's format to "image" before starting to print. If the image bands are set correctly, they can greatly improve printer throughput. However, if they are set incorrectly, they can degrade performance. The number of image bands available is determined by the amount of memory installed in your printer. Consult your printer manual for the available range of image bands. If this parameter is set to 0, the LLM uses the current printer setting.
<i>Retract Distance</i>	If this value is a non-zero value (try 1 or 2), the label is ejected this many "dots" after printing. The printer retracts, or backfeeds, before printing the next label. This is useful for advancing labels to the tear bar or cutter. Depending on your version of printer firmware, the label may only advance/retract a set amount when you are using die cut or mark stock, regardless of the value specified in the Retract parameter. Consult Intermec for information on possible firmware upgrades. If you are using die cut stock or mark stock and have a 3400 or 4100 printer, you must also check the "Feed After Print" option to enable the retract feature.
<i>Skip Distance (Continuous Stock Only)</i>	This setting is the distance to advance the label after all the fields have been printed. This setting is used to create white space between labels.
<i>Label Rest Point</i>	Label rest point adjusts the point at which the printer presents the labels for removal. This command is commonly used with the self-strip option. Label retract is available to retract the label back to the correct starting position for the next printed label.
<i>Enable Label Retract</i>	This feature causes the printer stock to move back into the printer under the printer head, print the label, then feed the label out to the tear off bar.
<i>Feed After Print</i>	Feed After print instructs the LLM to add a Form Feed (<FF>) after the label is printed. Generally, this is not necessary but it may be required for certain applications.
<i>Set Label Width</i>	(440x printers only) The 440x printers have a centered paper path so the label width is used to position the printing on the label. This option should be enabled in most cases.
<i>SendOptions</i>	The SendOptions checkbox defaults to checked. If unchecked, options are not included in the format from all applications (except design).

Intermec RFID Printer Options

Use Label or Printer Options This allows you to use either the Intermec Label Specific Options or the options set in Printer Specific Options (PSOs).

Write Protect RFID Data When checked, this protects the RFID data written to the tag from being overwritten.

Intermec RFID Setup Options Section

Send Setup Options to Printer When checked, settings selected in this dialog will be used for printing the label.

Void Text This is the text that will be printed across the label after write retries fail.

Labels to Retry on Tag Access Failure This sets the number of attempts to write to the label after an unsuccessful try. Settings range from 0 to 10.

Intermec - Printer Capabilities and Limits

Faster Throughput For faster throughput always use a parallel port interface.

Maximum Number of Fields The maximum number of fields per label format is between 40 and 200, but this varies between printer models.

Maximum Image Size The maximum size of any image varies among printers. The physical size of the image depends on the resolution of your printer. For 203 dpi printers, this is roughly 3" by 3". Note that the actual size of images that your printer can handle is determined by the amount of RAM installed in your printer.

Images Do Not Print If images are displayed in Loftware Label Manager label design but do not print, the printer probably does not have enough memory to store the image. If you are using a 440x printer, a "Memory Overflow" message is displayed on the control panel. If you are going to be working with large images, you may need to add additional UDC RAM to the printer. Contact Intermec for information on memory upgrades for your printer.

Printed Bar code Does Not Match the Design It is possible to define a combination of attributes, such as line width, ratio, etc, that the printer cannot produce, or might print in one orientation, but not another. Under these conditions, the printer may print the "closest possible" bar code. This usually occurs when you define a bar code with line width 1. The printer sometimes "promotes" this to a line width 2 bar code, resulting in a printed bar code that is twice as long as desired.

Disappearing Fields The Advanced printers do not print any field with an invalid definition. For example, if you define a UPC-A bar code, which requires exactly 11 digits, and then provide alphabetic data at print time, the printer does not print the field. If your label test prints correctly but fields do not print in production printing, check your data carefully to make sure it is valid.

Using CODE 128 The Intermec Advanced printers use "auto-discriminating" Code 128 logic. This means that the printer decides which subset of Code 128 to use based on the data for the bar code. The printer automatically shifts subsets if necessary. While this technique produces the densest possible bar codes, it makes it difficult to implement a specification that requires explicit control of subsets or shifts between various subsets.

Note: Refer to the section on how to build a UCC-128 symbology in this guide.

<i>Intermec Incrementing / Decrementing Fields</i>	When the printer is capable of doing the incrementing/decrementing internally, it is instructed to do so. This is called Native Mode. When printing in Native Mode, control returns to the PC almost immediately.
<i>Label Size</i>	Loftware Label Manager does incrementing/decrementing in software when the printer cannot do it internally and sends down a different set of data for each label. This is called "Extended Mode." In Extended mode, the Printing dialog box shows the line "Printing Label x of y" and control does not return to the PC until the entire series of labels is printed.

The label size is used as a frame of reference when you rotate your label or when you rotate the printing of a label. It is imperative that Loftware Label Manager Design knows the exact size of the stock on which you are printing.

Intermec - Font Download and Re-map Instructions

Some Intermec printers are capable of storing fonts. Intermec provides a utility called PrintSet™ that allows TrueType Fonts (TTF) to be downloaded to a memory location.

Note: Contact Intermec for information regarding your printer's capability of storing fonts and for the latest version of PrintSet™.

Loftware Label Manager takes advantage of font re-map by substituting native fonts in the printer and re-mapping them to pre-downloaded TTF fonts. You may re-map and define up to two different fonts in the printer by choosing *Options | Preferences | Intermec* tab.

Note: The Loftware Label Manager Font Re-Map capability is in addition to the True-Type font category selection in the Loftware Label Manager Design mode Properties Box.

Downloading a True-Type Font from your PC

1. Determine which system font you wish to download. The fonts are typically stored in the WINDOWS\FONTS or WINDOWS\SYSTEM directory as .TTF files.
2. Run the Intermec PrintSet™ utility program. (Make sure all the printer communication settings for PrintSet™ are the same as the Loftware Label Manager printer connection settings.)
3. Select the system font that you want to download under the Configuration menu.
4. Select a user definable font location in printer memory to download this font. (Typically, FONT03 to FONT06 are the first user-definable font locations.)
5. Select *To Printer* from the DataXfer menu. This option sends any current update information to the printer.

Important: Do an *Options | Test Print* from PrintSet™ to verify that the font is successfully downloaded to the printer.

Font Remap Instructions

1. From the Loftware Label Manager Design Mode, Select *Options | Preferences*.
2. Double-click on *Intermec* or click on the + symbol to open the drop-down list.
3. Click on *Remap First Font*.

An example of available options is shown to the right in the *Preferences* dialog box.

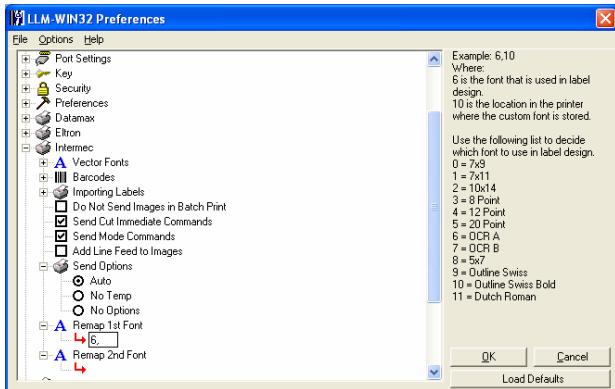


Figure B-A: Preferences dialog box

4. Type in a number from the list, a comma, and the location in the printer where you want the custom font to be stored.
5. Click on "Load Defaults," choose "OK" or "Cancel."

Remapped QR bar codes allow embedding control characters (*Barcodes\PDF417 Substitution\Create QR Symbol Instead of PDF417* setting in the Intermec section of the *Preferences* dialog). Characters 0x80 to 0x255 used in ASCII formulas are handled properly in the print stream. Low ASCII characters that work for PDF or Datamatrix also work for per field remapped QR bar codes.

Intermec Error Messages

	Printer Turned Off	Cable Disconnected	No Stock	Print Head Up
LPT	Error message. Does not let you retry, the label does not print.	Error message. Does let you retry so the label prints.	Error message. Does let you retry so the label prints.	Error message. Does let you retry so the label prints.
COM	Error message. Does let you retry, the label prints.	Error message. Does let you retry, the label prints.	Printer stock error. Does let you retry, the label prints.	Print head error. Does let you retry, the label prints.
Spooled Locally	No Loftware printer error, but has a Windows printer error. Does let you retry, the label prints.	No Loftware printer error, but has a Windows printer error. Does let you retry, the label prints.	No Loftware printer error, but has a Windows printer error. Does let you retry, the label prints.	No Loftware printer error, but has a Windows printer error. Does let you retry, the label prints.
Spooled to Shared	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.
Spooled to PrintServer	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.
Direct IP	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.	No error message. The labels print when the error is corrected.

Meto Information

This printer guide section provides information specific to the Meto family of printers. These printers are created with Datamax language; therefore, see the Datamax section for error messages and other information regarding Meto printers. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page. The supported printers include:

mi-4206	mi-4212	mi-4308	mi-6208
mi-6308	mn-4203	ST3210	

Monarch Information

See the Paxar Section, as Monarch is now known as Paxar.

Novexx Information

This section provides information specific to the Novexx family of printers. The supported printers include:

ALX 924	ALX 925	ALX 926	Chess 4	Chess 5	Chess 6	Chess 8
Cobra OFL	Cobra ONL	DPM 4	DPM 5	DPM 6	Lion	Lion Plus
Ocelot	Puma	Puma Plus	Texstile	Tiger	Tiger XXL	Xxtreme

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Interface Cables (Parallel, Serial, and USB)

These printers usually have a serial interface and a parallel interface. Some models support USB and have NIC Ports.

Parallel Interface (standard interface) - Using a standard parallel cable, plug the hardware license key into a LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Check with manufacturer for cable information. The hardware license key is not part of the serial interface since it must always be plugged into a LPT parallel port.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and computer (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Network Port - Included or optional on some printers.

Novexx Options

Novexx Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button.

Novexx Label Specific Options

Label Options Section

<i>Print Speed</i>	The range of available print speed varies with the selected printer type. This setting controls the speed at which the stock moves when printing. The combinations of print speed and head temperature control the print quality of the label.
<i>Feed Speed</i>	This setting affects the speed at which the paper is fed when advancing over non-printing areas. This setting may affect printer throughput.
<i>Head Temp</i>	This allows you to control the darkness of the print.
<i>Job End Flag</i>	When this option is set, the last label printed in a batch is longer than the previous labels, signifying that it is the last label of the batch.
<i>Label</i>	
<i>Label Inverse</i>	Inverts the entire label, black prints as white, white space prints as black.

Printer Overrides Section

These settings override the Print Options Section in Printer Specific Options.

<i>Print Mode</i>	<ul style="list-style-type: none">◦ Batch Mode - The whole surface of the label is printable.◦ Normal 1:1 Mode - The first 18mm of the label are not printable. The printing on the label is automatically shifted past the empty space.◦ Real 1:1 Mode - Total surface of the label is printable, and the label is retracted after each label.
<i>Character Set</i>	Several printer languages are available that can print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character.
<i>Gap Offset</i>	This command is for determining the beginning of the label when printing labels with irregular gaps.
<i>Cut Interval</i>	Sets the number of labels to be printed before the stock is cut.
<i>Dispense Position</i>	Adjusts the distance the label is fed after printing.

Media Overrides Section

This section overrides the Printer Specific Options for Gap Offset, Cut Interval, and Dispense Position.

<i>Gap Offset</i>	This command is for determining the beginning of the label when printing labels with irregular gaps.
<i>Cut Interval</i>	Sets the number of labels to be printed before the stock is cut.
<i>Dispense Position</i>	Adjusts the distance the label is fed after printing.

Printer Overrides Section

These settings override the Print Options Section in Printer Specific Options.

<i>Print Mode</i>	<ul style="list-style-type: none">◦ Batch Mode - The whole surface of the label is printable.◦ Normal 1:1 Mode - The first 18mm of the label are not printable. The printing on the label is automatically shifted past the empty space.◦ Real 1:1 Mode - Total surface of the label is printable, and the label is retracted after each label.
-------------------	---

<i>Dispense Position</i>	Adjusts the distance the label is fed after printing.
<i>Character Set</i>	Several printer languages are available to print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character.

Novexx Printer Specific Options

Media Options Section

<i>Stock Type</i>	<ul style="list-style-type: none"> ◦ <i>Die Cut</i> - Stock that has gaps between each label. ◦ <i>Continuous</i> - No gaps, notches, or perforations between labels.
<i>Media Type</i>	<ul style="list-style-type: none"> ◦ <i>Thermal Transfer</i> (Ribbon) - Uses ribbon and non-heat sensitive label stock to print. The print head is activated as the label moves underneath, heating the ribbon material and melting it onto the label. To increase the quality of the print, decrease or increase the speed and increase or decrease the heat as necessary. ◦ <i>Direct Thermal</i> (No Ribbon) - Uses heat sensitive label stock without the ribbon. The print head is activated as the label moves underneath heating the label stock and activating the heat sensitive material in the stock causing darkening of the material. To increase the quality of the print, decrease/increase the speed and increase/decrease the heat as necessary.
<i>Ribbon Autoecon</i>	When on, this command turns the ribbon saver "auto economy" feature on in supported printers. Printers that do not support this feature ignore the command. When this feature is turned on, the ribbon usage is economized by lifting when the minimum amount of white space is exceeded.
<i>Gap Offset</i>	This command determines the beginning of the label when printing labels with irregular gaps.
<i>Gap Length</i>	For continuous stock, this setting is used to add space between printed labels. The settings are in increments of 1mm.
<i>Cut Interval</i>	This sets the number of labels to be printed before the stock is cut. This setting may yield unexpected results if you use a value that is not an even multiple of the Quantity and/or Duplicates value. For example: If Quantity = 2, Duplicates = 3, and Cut Interval = 2, your labels may print/cut in the following sequence: Label 1 Duplicate 1 Label 1 Duplicate 2 <CUT> Label 1 Duplicate 3 Label 2 Duplicate 1 <CUT> Label 2 Duplicate 2 Label 2 Duplicate 3 <CUT>

Print Options Section

<i>Do Not Send Options</i>	When this is checked, Loftware does not send any Printer Specific Options or Label Specific Options to the printer.
<i>Print Mode</i>	The availability of the Print Modes depends on the printer. <ul style="list-style-type: none">◦ <i>Batch Mode</i> - The whole surface of the label is printable.◦ <i>Normal 1:1 Mode</i> - The first 18mm of the label are not printable. The printing on the label is automatically shifted past the empty space.◦ <i>Real 1:1 Mode</i> - Total surface of the label is printable, and the label is retracted after each label.
<i>Character Set</i>	Several printer languages are available to print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character.

Dispense Options Section

<i>Dispense Mode</i>	This setting applies only to printers with the dispenser attachment. <ul style="list-style-type: none">◦ <i>Disable</i> – The default setting, dispense mode disabled.◦ <i>Batch Mode</i> - The entire label is not printable, the label is not retracted after feeding to the Dispense position.◦ <i>1:1 Mode</i> - The entire label is printable since the label is retracted before printing the next label.
<i>Dispense Position</i>	Adjusts the distance the label is feed after printing.
<i>Use Single Start function</i>	Only one label is printed at a time. Printing is then suspended until the correct action has been taken. The required action depends on the settings of the printer, and is either the removal of the presented label, or the use of a foot pedal.

Graphics Options Section

These settings are mutually exclusive; they cannot both be set at the same time.

<i>Store Images</i>	This setting overrides the normal image behavior and always stores all images.
<i>Images as Binary</i>	All images are sent to the printer in binary format.

Custom Command Section

The Custom Command option is used when a non-typical printing function is required. Refer to the printer's programming manual for commands that may be used.

<i>Send to Printer</i>	This instructs the Loftware Label Manager system on when to send the EasyPlug Command.
------------------------	--

Note: Commands are printer model and firmware specific. Contact the appropriate printer representative for programming language questions.

Paxar MPCL1 Information

This printer guide provides information specific to the Paxar (formerly Monarch MPCL1) printers: Loftware's supported models are:

9425	9445	9474
------	------	------

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Loftware Label Manager takes full advantage of the sophisticated features of the Paxar line of printers. The fixed portions of the label format are stored in the printer's memory to increase printing performance.

In Label Design, when you are test printing, the label format is downloaded every time. However, in Label Printing, the label format is only downloaded the first time. Afterwards, only the variable fields and any new variable images are sent to the printer. If you print the same variable image on two labels in a row, it is stored in the printer for the first label and not downloaded for the second. The image is deleted from the printer's memory if the image field is left blank for a printed label.

When doing a range print, or printing incrementing/decrementing fields, there may be a slight pause between labels while the printer images the new label. When the printer is capable of doing the incrementing/decrementing internally, it is instructed to do so. If not, all variable data for each label is sent to the printer each time and Loftware Label Manager does all of the incrementing/decrementing.

Interface Cables (Parallel, Serial and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into a LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Paxar printers use an RS232-C null modem cable. The hardware license key is not part of the serial interface since it must always be plugged into a LPT parallel port.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and PC (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Error Messages and Handling

When printing to a Paxar printer or using Printer Status to check the state of a Paxar printer, Loftware Label Manager may report the following error: Printer Returned <error code>

Refer to your printer documentation to reference these error codes.

Example: "Printer returned: DATA ERROR, error 571"

Error 571 means that a UPC or EAN bar code received data whose length is invalid. You should check the length of your data.

Supported Features

Image Support - Images are downloaded and stored in the printer's image memory. Loftware Label Manager "remembers" images that are sent to the printer and only resends an image if the image is changed.

Printer Control and Configuration

The Loftware Label Manager Design application allows you to configure printer settings that are saved in the label format using *File | Media Setup* and *File | Media Setup | Label Options*.

Individual workstation printer settings may be configured using *File | Devices* from within the Design or any of the Print applications: On Demand, Range.

Many of the settings in the printer do not take effect until the printer is re-booted. All Label-Specific options are sent to the printer every time a label is printed.

Paxar MPCL1 Options

Note: Paxar is formerly Monarch.

Paxar MPCL1 Label Options

Horizontal Copies The number of copies to print across the supply.

Cut/Take-Up

- *Use PSO Cut Option* – Uses the Cut/Takeup option selected in the device Options dialog box. Setting the cut option in the Label Options dialog box provides label specific cutting options. Whereas, setting the Cut/Takeup option in the device Options dialog box produces the same behavior for all labels printed on that specific printer.
- *Cut each label, except last* - This option only works with labels 4 to 8 inches in length.
- *Cut each label, including last* - This option only works with labels 4 to 8 inches in length.
- *No Cut/No Rewind* - When enabled, does not allow label to be cut, nor does it rewind after printing.

Format Number The number of the Monarch Printer Control Language (MPCL) format to use.
Refer to your MPCL documentation for more information.

Paxar MPCL1 Printer Options

Label Options Section

Cut/Takeup

- *Cut After Entire Batch Only* – When enabled, cuts after the last label in the batch has been printed.
- *No Cut/No Rewind* – When enabled, does not allow label to be cut, nor does it rewind after printing.
- *Cut each label, except last* - This option only works with labels 4 to 8 inches in length.
- *Cut each label, including last* - This option only works with labels 4 to 8 inches in length.

Note: There are extensive differences in the cut behavior between Extended and Native Modes with the 98XX Series Printer. Information regarding the expected behaviors for each is found in Loftware website's Knowledge Base under LLM | Printing | Printing Problems.

Label Mode

- *Separator Off* - No separator prints between batch jobs.
- *Normal Length Separator* – A normal length separator with 3mm black stripe prints between batch jobs.
- *Double Length Separator* - A double length separator (typically used for 924 or 925 stacker) prints between batch jobs. On the 920 stacker, a 3mm extra length tag prints between batch jobs.
- *Extra Length Tag* – A 3mm extra length tag with 6mm stripe prints between batches.

Paxar MPCL1 - UPC and EAN Bar Codes

Note: Paxar is formerly Monarch.

Using UPC/EAN Extensions

Loftware Label Manager allows you to specify that UPC/EAN bar codes should print with an extension. In addition, PAXAR printers automatically enable UPC/EAN extensions based on the length of the data.

Note: The user must enter an 'extra' character of data when an extension is enabled. This 'extra' character is ignored by the printer. For example, using UPC-E with the +2 extension, the user must enter 9 characters of data, the first 6 of which are encoded in the bar code and the last 2 are encoded in the extension. The 7th character of data is ignored and replaced with the bar code check digit.

Paxar MPCL2 Information

Note: Paxar is formerly Monarch.

This printer guide provides information specific to the Paxar printers. RFID Printers are italicized. The Paxar/Monarch printers include:

1465	9401/02/05	9403	9412/13E	9414E
9414M	9416	9433	9446	9460
9490	9494	9805	9820	9825
9830	9835	9840	9850	9855
9856	9860	Monarch 9855 RFID	Monarch 9855 RFMP	

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the Monarch (Paxar) RFID printer.

Loftware Label Manager takes full advantage of the sophisticated features of the Paxar/Monarch line of printers. The fixed portions of the label format are stored in the printer's memory to increase printing performance.

In Label Design, when you are test printing, the label format is downloaded every time. However, in Label Printing, the label format is only downloaded the first time. Afterwards, only the variable fields and any new variable images are sent to the printer. If you print the same variable image on two labels in a row, it is stored in the printer for the first label and not downloaded for the second. The image is deleted from the printer's memory if the image field is left blank for a printed label.

When doing a range print or printing incrementing/decrementing fields, there may be a slight pause between labels while the printer images the new label. When the printer is capable of doing the incrementing/decrementing internally, it is instructed to do so. If not, all variable data for each label is sent to the printer each time and Loftware Label Manager does all of the incrementing / decrementing.

Printer Status (Serial only) - If the printer reports that everything is OK, the level of firmware in the printer is also displayed.

This function can be a very valuable tool. If there is a problem communicating with the printer, a corresponding error message is displayed.

Interface Cables (Parallel, Serial and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into a LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - For the 9440 and 9494 printers, use the serial cable that came with your printer. If it did not come with a cable, consult the printer documentation for cable requirements.

USB Interface (standard or optional interface) - Use a standard USB cable, and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

For all other Paxar printers, use an RS232-C null modem cable. The hardware license key is not part of the serial interface since it must always be plugged into a LPT parallel port.

Error Messages and Handling

When printing to a Paxar printer or using Printer Status to check the state of a Paxar printer, Loftware Label Manager may report the following error:

Printer Returned <error code>

Refer to your printer documentation to reference these error codes.

Example: "Printer returned: DATA ERROR, error 571"

Error 571 means that a UPC or EAN bar code received data whose length is invalid. You should check the length of your data.

Supported Features

Image Support - Images are downloaded and stored in the printer's image memory. Software Label Manager "remembers" images that are sent to the printer, and only resends an image if the image is changed.

Supported Fonts - The following are the standard fonts provided in the 9446, 9490, and 9494:

Name	Dots	Features
Reduced	8 by 18	magnify height and width from 1 to 7
Standard	16 by 24	magnify height and width from 1 to 7
OCR-A	16 by 23	magnify height and width from 1 to 7; no lowercase
BOLD	32 by 48	magnify height and width from 1 to 7; no lowercase

On the 9490 and 9494, the following additional fonts are available:

Pointable Vector	height and width values in points from 4 to 90
CG Times	height and width magnification from 1 to 7
CG Times Bold	height and width magnification from 1 to 7

Additional ROM Fonts - Additional ROM Font sets are available for Paxar printers. If an additional ROM set is installed in your printer, select *File | Media Setup* and choose the appropriate ROM Set in the Additional Installed Fonts list. Afterwards, the font choices for the selected ROM Set become available in Label Design. If after doing this, you try to print and the printer beeps or returns an error, you may have chosen a ROM Set that the printer does not really have.

Printer Control and Configuration

The Software Label Manager Design application allows you to configure global printer settings, which are saved in the label format using *File | Media Setup* and *File | Media Setup | Label Options*.

Individual workstation printer settings may be configured using *File | Devices* from within the Design or any of the Print applications: On Demand, Range.

Many of the settings in the printer do not take effect until the printer is re-booted. In the printer options dialog box, pushing the *Send To Printer* button sends the currently selected options to the printer. All Label-Specific options are sent to the printer every time a label is printed.

Paxar MPCL2 Options

Note: Paxar is formerly Monarch.

Paxar MPCL2 Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button.

Paxar MPCL2 Label Specific Options

Print Speed

The range of available print speeds varies with the selected printer type. This setting controls the speed at which the paper is fed when printing. The combinations of print speed and head temperature control the print quality of the label.

Head Temperature This allows you to control the darkness of the print. 0 is nominal; setting the temperature higher than 0 causes the label to print darker. Temperature settings lower than 0 cause the label to print lighter. Values from -390 to 156.

Cut Options

- *Use PSO* - Uses the cut option selected in the device Options dialog box. Setting the cut option in the Label Options dialog box provides label specific cutting options. Whereas, setting the cut option in the device Options dialog box produces the same behavior for all labels printed on that specific printer.
- *Cutter Off* - Disables the cut mechanism on the printer.
- *Cut After Every Tag* - Cuts before first tag, cuts each tag and cuts after last tag.
- *Cut After Every Batch* -Cuts before first tag, cuts after batch. Cuts in strips, not each tag.
- *Cut After Last Tag in Batch* – Cuts before first tag, cuts each tag, cuts after the last tag and feeds one or two tags past the printhead when it cuts the last tag in the last batch.
- *Cut Every Tag and After Batch* – Does not cut before the first tag in a batch, but cuts between each tag and after the last tag in the batch. The feed key must be pressed to feed the last tag out far enough to be cut.

Note: When using the cutter with 98x Printers, please review *Loftware Knowledge Base Article #49452* for information regarding different behaviors in Modes, Versions, and Cut Intervals.

Backfeed Options

- *Use PSO Backfeed* - Uses the backfeed option selected in the device Options dialog box. Selecting a Backfeed Options setting in the Label Options dialog box applies label specific backfeeding behavior to each label, that is, all labels printed on that specific printer.
- *Disable Backfeed* - No backfeed motion occurs.
- *Enable Backfeed* - Backfeed motion occurs after each printed label. This option can be used on any printer without a knife.
- *Extended Backfeed* - An extended backfeed motion occurs after each printed label. This option is only valid on the 9835 and 9840 printers.

Paxar MPCL2 Printer Specific Options

Label Options Section

<i>Ribbon Type</i>	<ul style="list-style-type: none"> ◦ <i>Normal Ribbon</i> - The standard ribbon is installed. ◦ <i>No Ribbon</i> - Ribbon is not installed. Direct thermal stock is required for this option. ◦ <i>High Energy Ribbon</i> - High Energy Ribbon is installed. In this mode, the print head is elevated to a higher temperature and therefore requires a ribbon that withstands high temperatures. A print speed of 2.5 IPS must be used with this ribbon. Peel mode should not be used with High Energy Ribbon. Please consult the Paxar Operator's Handbook for other limitations.
<i>Supply Type</i>	<ul style="list-style-type: none"> ◦ <i>Center Aperture Supply</i> - Hole, gap, or other type of opening found in the center of the stock.

- *Continuous* - No gaps, notches, or perforations between labels.
- *Die Cut Labels* - Stock that has gaps between each label.
- *Mark Stock* - Black mark found opposite print side.

Label Mode

- *Continuous operation* - Default mode for printing when peel mode is not desired or a rewind motor is not installed.
- *On-demand mode* - While in On-Demand mode the next label prints when the previous label is removed or when the feed button is pressed. The pause light blinks until all of the labels in the batch are printed. This option should be used with a peel module.
- *Rewind* - This option is peel mode with a rewind motor. The label backing should be properly fed and attached to the take up reel.

Cutter Mode

- *Cutter Off* - Disables the cut mechanism on the printer.
- *Cut After Every Tag* - Cuts before first tag, cuts each tag, and cuts after last tag.
- *Cut After Last Tag in Batch* - Cuts before first tag, cuts each tag, cuts after the last tag and feeds one or two tags past the printhead when it cuts the last tag in the last batch.
- *Cut Every Tag and after Batch* - Does not cut before the first tag in a batch, but cuts between each tag and after the last tag in the batch. The feed key must be pressed to feed the last tag out far enough to be cut.

Forms Control Section

<i>Horizontal Adjust</i>	Horizontal offset (in printer dots) used during printing.
<i>Supply Position</i>	Supply (label) position at beginning of print job (-99 to 99).
<i>Vertical Adjust</i>	Vertical offset (in printer dots) used during printing.
<i>Cut Adjust</i>	Adjusts where the tag is cut. The printer adjusts the cut position according to the black marks on the supply. You may need to adjust for aperture supplies. Increase to move the cut up, decrease to move the cut down.
<i>Slashed Zero</i>	When checked, prints slashes through zeros.
<i>Print Separator</i>	When checked, prints a separator ticket. <ul style="list-style-type: none"> ◦ <i>Single</i> - Prints a single separator ticket (all printers). ◦ <i>Double</i> - Prints 2 separator tickets (9835 V5.0 or 9840 V6.0 only) Note that Double is disabled in Version 7.0.29 for the 9835, 9840, and 9850 Models.
<i>Old Firmware</i>	Does not send new firmware options if checked. If you are having difficulty communicating with the printer, try selecting this option. By choosing this option, you disable status checking and other commands that are only supported in newer versions of the printer firmware. If using this option allows you to print, you may wish to consider purchasing a printer firmware upgrade. After your printer firmware upgrade is installed, you should uncheck this option.
<i>Only Resend Fields that have changed</i>	When checked, only the data that has been changed is re sent for printing.

Backfeed Control Section

Note: The Paxar 9403, 9805, and 9856 printers do not support backfeed.

Use Backfeed Control to enable or disable the backfeed option, set the dispense position and the backfeed distance. Backfeed works by advancing each printed label to the desired dispense position. Once that label is removed, the next label to be printed is backed up underneath the printhead. In continuous mode, only the last label in the batch is advanced to the dispense position. You may need to adjust the dispense position to allow labels to be removed, die cut labels to be removed easily, or to prevent them from falling off.

The dispense position and backfeed distance are optional parameters and do not have to be specified. However, they allow for greater precision when positioning the supply. You cannot change the backfeed distance while the printer is active.

Dispense Position Adjusts the stopping point of the label. **50 to 200** dots (default 65 dots).

Backfeed Distance Amount to move label backwards. **10 to 200** dots (default 65 dots). Cannot be greater than the dispense position.

The backfeed distance should equal the dispense position. An exception is if you are tearing instead of peeling. Then, the backfeed distance must be 30 dots (.150 inches) less than the dispense position. However, the result is a 30 dot non-print zone on your supply. The 30-dot difference accounts for improper tearing of butt cut supplies, because you do not want any exposed adhesive under the printhead. For more information, consult your Printer manual.

Font Style Section

Opaque The font and its envelope are opaque and blot out any lines or other fields that it overlaps.

Transparent The font and its envelope are transparent, and any lines or other fields that it overlaps are visible.

Advanced Options Section

Language Selects the language of the country chosen. Defaults to United States.

Symbol Set Selects the symbol set used for fonts;; see Printer Appendix to determine the appropriate choice based on the application.

Graphic Storage Choose Flash or Volatile RAM or Non-Volatile RAM. Flash Memory is a special type of EEPROM that can be erased and reprogrammed in blocks instead of one byte at a time. Volatile RAM loses its contents when the power is turned off, whereas Non-volatile RAM retains its contents.

Note: If the graphic is larger than .5 by .5 inches, the graphic is stored in Temporary Storage in the printer buffer, regardless of the PSO selected. The image is held only until it is sent.

Custom Command Section

The Custom Command option is used when a non-typical function is required when printing. Refer to the printer's programming manual for commands that may be used.

Note: Commands are printer model and firmware specific. Contact the appropriate printer representative for programming language questions.

Paxar MPCL2: More Information

Note: Paxar is formerly Monarch.

Incrementing/Decrementing Fields

When the printer is capable of doing the incrementing/decrementing internally, it is instructed to do so. This is called "Native Mode." In Native Mode, control returns to the PC almost immediately.

Loftware Label Manager does incrementing/decrementing in software when the printer cannot do it internally and sends down a different set of data for each label. This is called "Extended Mode." In Extended mode, the Printing dialog box shows the line "Printing Label x of y" and control does not return to the PC until the entire series of labels is printed.

Label Size

The label size is used as a frame of reference. When you rotate your label or when you rotate the printing of a label, it is imperative that Loftware Label Manager Design knows the exact size of the stock on which you are printing.

UPC and EAN bar codes

Using UPC/EAN Extensions

Loftware Label Manager allows you to specify that UPC/EAN bar codes print with an extension. In addition, Paxar printers automatically enable UPC/EAN extensions based on the length of the data, as shown below

Note: The user must enter an 'extra' character of data when an extension is enabled. This 'extra' character is ignored by the printer. For example, using UPC-E with the +2 extension, the user must enter 9 characters of data. The first 6 characters are encoded in the bar code and the last 2 are encoded in the extension. The 7th character of data is ignored and replaced with the bar code check digit.

Communications Settings

The communications settings for the Paxar 9490 and 9494 are controlled by software instead of switch settings.

Note: This feature is not supported on the Paxar 9446 printers.

To set the printer's communications parameters, use the *Send Settings* button in the device *Connection* dialog box. Setting the printer's communications parameters is only possible immediately after turning on the printer.

To print out the current communication settings of these printers shut the printer off, depress the printer feed button, turn the printer on, and immediately release the feed button when the yellow LED light on top of the printer blinks. A label feeds out of the printer showing current settings.

For more information, see the "Configuring the Printer" section of your printer manual.

Creating a Price Field

To format a field as a price field:

Example: \$19.68

Define field as variable and preface the name of the field with \$\$.

Example: \$\$Price

To have \$19.68 printed on the label, supply 1968 as data.

Paxar Error Messages

Note: Paxar was formerly known as Monarch.

	Printer Turned Off	Cable Disconnected	No Stock	Print Head Up
LPT	Error message. Does not let you retry, the label does not print.	Error message. Does not let you retry, the label does not print.	No error message. Behaves as if the labels are printing. Press feed to get the first two labels; press feed again.	No error message. Behaves as if the labels are printing. Press feed to get the first two labels; press feed again.
COM	Error message comes up when you restart the printer. Allows retry, labels print.	Error message comes up when you reconnect the printer. Allows retry, labels print.	Error message comes up right away. Allows retry, the labels print.	Error message comes up right away. Allows retry, the labels print.
Spooled Locally	No Loftware error message, but a Windows printer error is displayed. All labels print.	No Loftware error message, but a Windows printer error is displayed. All labels print.	No Loftware error message, but a Windows printer error is displayed. All labels print.	No Loftware error message, but a Windows printer error is displayed. All labels print.
Spooled to Shared	No error message. All labels print.	No error message. All labels print.	No error message. Labels print after stock is added.	No error message. Labels print after the print head is put down.
Spooled to PrintServer	No error message. All labels print.	No error message. All labels print.	No error message. Labels print after stock is added.	No error message. Labels print after print head is down.
Direct IP	No error message. All labels print.	No error message. All labels print.	No error message. Labels print after stock is added.	No error message. Labels print after print head is put down.

PCL5 Information

PCL is not a Printer Family as such but is listed as a Loftware native driver among the available printers. Hewlett-Packard® created PCL (Printer Control Language), but it is used by a number of other printer manufacturers as well. Loftware's PCL driver operates with any printer that supports PCL5.

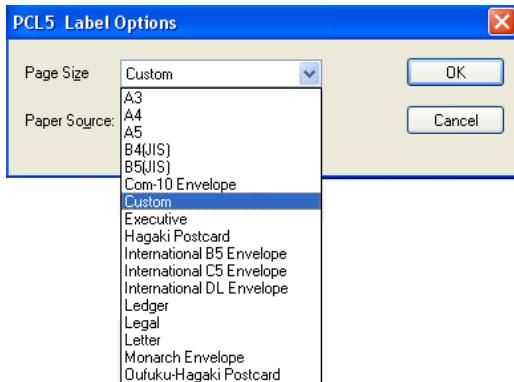
The native PCL fonts enabled for PCL5 are Univers, CG Times, Courier, and Arial. Univers is the default font for the driver.

PCL5 Options

PCL5 Label Specific Options

PCL5 *Page Size* options include: A3, A4, A5, B4(JIS), B5(JIS), Com-10 Envelope, Custom, Executive, Hagaki Postcard, International B5 Envelope, International C5 Envelope, International DL Envelope,

Ledger, Legal, Letter, Monarch Envelope, and Oufuku-Hagaki Postcard. Options supported by different PCL5 printer models may vary.



The *Custom* page size option allows printing on custom paper size page stock to a PCL 5 Printer that supports the custom size.

- A label can be designed with specified dimensions and then printed on a target PCL 5 printer that supports the custom size and has been set up with the custom-sized paper. (These configuration settings are made from the printer's configuration interface (Control Panel).) The label dimensions should correspond to the custom paper size.
- A label can also be configured with a page layout of specified label / page width and height, and then printed on a target PCL 5 printer that supports the custom size and has been set up with the custom-sized paper. The layout dimensions should correspond to the custom paper size. (Refer to Chapter 10, Page Layouts for more information on creating and attaching layouts to labels.)

Paper Source – Because of the variety of PCL5 supported page sizes, this setting allows you to configure the paper source (tray) at the label level. By default, the *Paper Source* is set to the selection in the printer's PSO (*Use Printer Setup*), but you can select any of the other options described in the PCL5 Printer Specific Options section below. If a different option is selected and saved in the label format, then that option is used whenever that label is printed, UNLESS a job containing a *TRAY command is submitted through LPS. The *TRAY command overrides both the printer setting and the label setting. (Refer to the *TRAY command section of the "Print Request Data Structures" topic in Chapter 1 of the LPS guide.)

Note: Different manufacturer's printers may implement the handling of the Paper Source selection differently. For example, one manufacturer may map the Lower Tray command to the printer's Lower Tray while another manufacturer may map the same command to its Optional Tray. Additionally, these mappings may be configurable, again depending upon the manufacturer.

When driving printers with PCL5, note that there is typically a $\frac{1}{4}$ " margin on all sides of the page that is not printable. Additionally, along the top of the page, the unprintable margin area can have label elements (text, lines, etc.) positioned within it, creating a clipping effect. For this reason, it may be best to define the label or page layout size in Loftware to be $\frac{1}{2}$ " ($2 \times \frac{1}{4}$ ") less than the physical paper size. For example, a label designed for a Letter sized page would be 8" x $10\frac{1}{2}$ ".

The optimal settings and dimensions for different PCL5 printer models may vary.

PCL5 Printer Specific Options

Printer Options with PCL5 printers are different from most of the other supported printers. The figure displays default options:

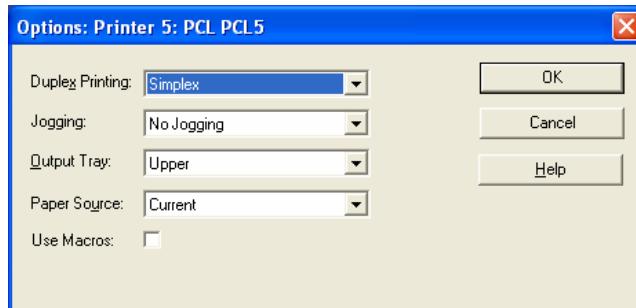


Figure B-B: PCL5 Printer Options dialog box

Duplex Printing

- *Simplex* – Simplex mode prints images and characters on one side of a sheet / page.
- *Duplex Long Edge* – Prints images and characters on two sides of a sheet/page. Long means that the duplexed pages are bound along the length of the physical page.
- *Duplex Small Edge* - Prints images and characters on two sides of a sheet/page. Short means that the duplexed pages are bound along the width of the physical page.

Jogging

Printers that support this feature provide a means of identifying one print job from others by slightly offsetting the first label of each print job.

- *First Label in Job* – When a print request is initiated, the paper tray is shifted slightly or “jogged” before the first label or page prints.
- *No Jogging* – Jogging is disabled. There is no print job separation even for printers that support this feature.

Output Tray

- *Upper* – The default output bin for paper.
- *Lower* - Prints to the lower output bin. If this command is received by a printer that does not contain the dual-bin feature, it is ignored.

Paper Source

- *Auto* – This option feeds paper from a printer-specific tray.
- *Current* – Prints the current page from the location last used.
- *Envelope Feeder* – This option prints using stock from an optional envelope feeder tray.
- *Envelope Manual* – Prints the envelope as manually inserted on the top of the tray.
- *Lower Tray* – Prints using stock from the lower tray.
- *Manual* – This option allows manual insertion of paper.
- *Optional Source* – This allows insertion of stock from an optional location that may exist on a specific printer.

Use Macros

If this is checked, Loftware uses the PCL5 Macro commands to store fixed fields, lines and boxes. Depending on your labels, this may significantly speed printing throughput, especially when there are large fixed images, text, or bar code fields on your label.

PCL5 USB Issues

USB Printing and PCL5

Loftware tested printing to a USB-connected HP LaserJet 1200 series PCL 5+ printer using various Loftware applications such as Design Mode, On-Demand Print, etc. The results are documented in very general terms below. Your results depend on the printer manufacturer and printer you are using and are quite likely to be different.

Loftware Applications are designed to open, write, and then close the USB Printer port when processing a print request. As long as the USB Printer allows this to happen, printing continues without incident. If the printer is not connected or is turned off, the Loftware application cannot open the port; a message is displayed or an error condition is created which states “Error Opening Port (printer name).” If the printer is out of stock and it shuts the USB port down, the Loftware application cannot write to the port. A message is displayed, or an error condition is created stating “Error Writing to Port (printer name).” If the printer is out of stock but the printer has a buffer, an error message may not display until the buffer is full.

USB Printing and the LPS

Various expected behaviors occur when printing to the LPS using a USB Printer with error conditions (i.e.; Paper Out, etc.). After the printer buffer is full, jobs stay in pending folder. After about 2 minutes, the Status displays media problem or “Error writing to/opening port (Printer Name)” message. After correcting the error condition, the jobs in the buffer print out, and the pending job completes.

It is important to read all available printer manufacturer information on USB Printing with your printer before attempting to print using Loftware applications. Remember to install any USB Drivers *before* connecting, configuring or printing in Loftware.

Pressiza Information

The Pressiza printers supported by Loftware include:

406+	408	412-64	512-64	610-64
7401 406-400+	808-64	F-422	F-428	F-438
F-446	F-464	TX408	XT-10	

These printers use the same language as Datamax Printers; therefore, see the Datamax section for error messages and other information regarding Pressiza printers. Updated printer information is available at Loftware’s website, www.loftware.com. See Printers on the Technical Support page.

Printronix Information

This printer guide provides information specific to the Printronix printers, and IBM OEM Printronix printers. (See the IBM Section for a list of IBM printers). RFID Printers are italicized. The supported Printronix printers include:

L1024	L1524	L5020	L5031
L5035	L5520	L5535	LPA8204r
LPA8304r	P5005B	P5010	P5205B
P5210	P5215	P5220	SL4M
SL5204	SL5204r	SL5304	SL5304r
SLPA5204r	SLPA5304r	SLPA7204e	SLPA7304e
SLPA8204r	SLPA8304r	T4M	T5204
T5204r	T5206	T5206r	T5208
T5208r	T5304	T5304r	T5306
T5306r	T5308	T5308r	<i>LPA8204r RFID</i>
<i>LPA8304r RFID</i>	<i>SL4M RFID</i>	<i>SL5204 RFID</i>	<i>SL5204r RFID</i>
<i>SL5304 RFID</i>	<i>SL5304r RFID</i>	<i>SL5306r RFID</i>	<i>SLPA5204r RFID</i>
<i>SLPA5304r RFID</i>	<i>SLPA7204e RFID</i>	<i>SLPA7304e RFID</i>	<i>SLPA8204r RFID</i>
<i>SLPA8304r RFID</i>	<i>T4M RFID</i>	<i>T5204 RFID</i>	<i>T5204r RFID</i>
<i>T5206r RFID</i>	<i>T5208r RFID</i>	<i>T5304 RFID</i>	<i>T5304r RFID</i>
<i>T5306r RFID</i>	<i>T5308r RFID</i>		

To view updated Printronix information, go to Loftware's website, www.loftware.com. See the section on Printers on the Technical Support page.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the Printronix RFID printers.

Printer Status

This function can be a very valuable tool when printers are connected using the Serial Interface. If there is a problem communicating with the printer, an error message is displayed. By default, Printer Status is disabled for Printronix printers. To enable Printer Status, you must first enable "One Char Enquiry" on the printer via the menu controls, and then uncheck the "Disable Status Checking" check box in the device *Connection* dialog box in Loftware.

Interface Cables (Parallel, Serial and USB)

Parallel Interface - Using a standard parallel cable, plug the hardware license key into an LPT parallel port, and connect the cable between the key and the printer.

Serial Interface - For all Printronix printers, use an RS232-C null modem cable. The hardware license key is not part of the serial interface since it must always be plugged into an LPT parallel port.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and PC (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Printronix Options

Printronix Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button. (Printronix RFID options are also described in this section.)

Printronix Label Specific Options

Label Options Section

<i>Print Speed (IPS)</i>	The range of available print speeds in inches per second (IPS) varies with the selected printer type. Note that the printer may use a slower print speed than you specify in order to maintain print quality.
<i>Slew Rate (IPS)</i>	This setting affects the speed in inches per second (IPS) at which the paper is fed when advancing over non-printing areas. This setting may affect printer throughput.
<i>Darkness</i>	This allows you to control the darkness of the print. -3 is nominal; setting the temperature higher than -3 causes the label to print darker. Temperature settings lower than -3 cause the label to print lighter. The valid values range from -15 to 15.
<i>Format Number</i>	Specifies the areas of RAM in which the label format is to be stored. The valid values are 1-100.
<i>Print Quality</i>	This setting only applies to the P5000 Series line matrix printers and is somewhat similar to the darkness control on the thermal transfer printers. <ul style="list-style-type: none">◦ <i>Best</i> - prints the darkest images, but at the slowest speed.◦ <i>High</i> - prints at a faster speed than Best, but the characters are not as dark.◦ <i>Data Processing</i> - This mode should be set if the highest speed is desired, printing is not as dark as High.

Label Overrides Section

<i>Symbol Set</i>	<ul style="list-style-type: none">◦ <i>Use Printer Symbol Set</i> – Label uses settings from Printer Specific Options.◦ <i>User Defined</i> – Label uses an added CodePage.◦ <i>Other Symbol Sets</i> (Arabic to Turkish)
<i>Send Options</i>	<ul style="list-style-type: none">◦ <i>Use Printer Setup</i> - Label uses settings from Printer Specific Options (PSO).◦ <i>No</i> – Overrides any Send Options set in PSO, nothing set.◦ <i>Yes</i> – Overrides Do Not Send Option in PSO
<i>Cutter</i>	Enables cutter for this label only.
<i>Cut Interval</i>	Sets Cut Interval for this label only.

Printronix Printer Specific Options

Since none of the printer options are sent from Loftware, the Printer must be properly configured through its front panel for this to work. Be sure to enable HOST FORM LENGTH on the printer.

Media Options Section

Stock Type
(Gap Sense)

- This option specifies the method used to detect the media top.
- *Advanced Gap Stock* - Media being used has liner gaps between die cut labels with black background.
- *Advanced Notch Stock* - Media being used has notches or holes that interrupt a black vertical line on the underside of the media.
- *Continuous Stock* - Continuous media with no black stripe and no gap is being used.
- *Die Cut Stock* - Media with a space or “gap” between die cut labels is being used, where the media backing or liner is present between labels. Also for media with pre-punched notches or holes.
- *Mark Stock* - Media with a horizontal black stripe on the backside of the liner is being used.

Media Type
(Print Mode)

- *Direct* - Direct Thermal type of printing (no ribbon) requires special heat sensitive media.
- *Transfer* - Thermal Transfer type of printing (ribbon installed).

Media Handling

This option specifies how the printer handles the media.

- *Continuous operation* - Printer prints on the media and sends it out the front.
- *Cut Each Label* - Media is cut after printing each page (requires optional cutter).
- *Peel-Off* - Prints and peels die-cut labels from the liner without assistance. The printer waits for you to take away the label before printing the next one. The label backing is rewound on the internal rewinder. A “LABEL PRESENT/Remove Label” message reminds you to remove the label before the next one can be printed.
- *Tear-Off* - After each label is printed, the printer positions the label over the tear-off bar and waits for you to tear-off the label before printing the next one. A “LABEL PRESENT/Remove Label” message reminds you to remove the label before the next one can be printed.
- *Tear-Off Strip* - Printer prints on the media and sends it out the front until the print buffer is empty, then positions the last label over the tear-off bar for removal.

Forms Control Section

Cut Interval

Sets the printer to cut after the specified number of pages (requires optional cutter).

Tear Off Pause Count

Sets the printer to pause after the specified number of pages. The paper must be completely torn before the printer resumes normal operation.

<i>Offline Pause Count</i>	Sets the printer to pause (offline) after the specified number of physical pages printed.
<i>Auto Eject Labels</i>	Specifies whether the printer ejects the last page of a job if the page is not full. When this setting is checked, the printer ejects the last page after the entire job has been processed and printed.
<i>Form Feed at Top of Form</i>	By default, this setting is deselected; the printer does not eject the last page unless you send a Page Eject command or until the printer receives another print job. Specifies whether the printer performs a Form Feed when a Form Feed command is received and the printer is already at the Top of Form. When this setting is checked, the printer advances media from the present Top of Form position to the next Top of Form position upon receipt of a Form Feed command, causing a blank form. The factory default is Enable. When this setting is deselected, the printer does not advance media from the present Top of Form position to the next Top of Form position upon receipt of a Form Feed command.
<i>Host Form Length</i>	Determines how the physical label size is affected upon an EXECUTE command.

The physical label length changes to match the form length (defined in CREATE mode). The physical label size remains at the new setting until another EXECUTE command is received, or the PRINTER CONTROL menu settings are changed. The factory default is Enable.

Forms printed in EXECUTE mode do not change the physical label size. Therefore, the size of the form (defined in CREATE mode) must fit within the current label dimensions, or errors may occur.

Note: Changing the form length via the EXECUTE command changes the ASCII Emulation logical dimensions.

Field Options Section

<i>Print UPC Descenders</i>	This parameter allows you to print bar code descenders when human readable data is not present in the UPC/EAN bar codes <ul style="list-style-type: none"> ° <i>Always</i> - UPC/EAN bar codes are printed with descenders, even if there is no human readable data. ° <i>With HR Enabled</i> - UPC/EAN bar codes are printed with descenders only when the Human Readable text field is enabled.
<i>Force Uppercase</i>	When checked, any lower case data supplied for text fields are converted to uppercase. When unchecked, lower case data supplied for text fields print in lowercase.
<i>Slashed Zeros</i>	This option applies to all character sets except OCR A and OCR B. When checked, zeros are printed with a slash. When unchecked, zeros are printed without a slash.

Advanced Options Section

<i>Symbol Set</i>	Accesses one of the printer's internal multinational or international character sets.
-------------------	---

Note: See the Templates and Wizards chapter for more information on this.

<i>Error Report</i>	This option sets the error reporting capability of the printer. <ul style="list-style-type: none"> ◦ <i>Debug</i> - Puts the printer in debug mode whenever a label format is defined. Each line of the format is printed along with any printer language errors. ◦ <i>Fault</i> - If a printer language error occurs, the error is printed on the media, the message “IGP Error” is displayed on the front panel, and then the printer goes offline. <p>The error must be cleared before the printer can resume normal operation.</p> <ul style="list-style-type: none"> ◦ <i>Off</i> – The printer does no physical boundary checking whatsoever. Fields are clipped if they are beyond the page boundaries. ◦ <i>On</i> - Full physical boundary checking is performed. Any field that falls off the current page is reported as an error.
<i>PPM/PMU</i>	<ul style="list-style-type: none"> ◦ <i>PPM</i> = Printronix Printer Manager – Printronix version, only works with Printronix printers ◦ <i>PMU</i> = Print Manager Utility – IBM version, only works with IBM printers <p>The PPM/PMU is a program that provides status and control of multiple printers of the associated type on a network.</p> <p>To use this Loftware feature, enter the IP Address of the computer where the PPM/PMU is running, and click the Browse button. This feature assumes you have a browser on your system and that the PPM/PMU is running on the PC whose IP Address is displayed. If you are successful, a login screen is displayed where you can enter your credentials and configure the system. Refer to your Printronix Manual for information on the actual workings of the PPM/PMU. The IP Address is persistent across all IBM/Printronix printers; each time you enter any IBM / Printronix PSO dialog, the display reflects whatever was typed in that box the last time the IBM/Printronix PSO dialog was closed.</p>
<i>Don't Send Options</i>	When this is checked, Loftware does not send any PSOs or LSOs to the printer. This is useful if you have an older printer or a printer with an older emulation that does not support one or more of the current commands that Loftware sends.

Custom Command Section

The Custom Command box allows you to add additional commands to the data stream that is sent to the printer. Please consult your IGP/PGL manual for custom command syntax.

Note: The custom command is sent after the ~CONFIG command and before the ~CREATE command.

Printronix RFID Options Section

This section applies to Printronix RFID printers.

<i>Use Label or Printer Options</i>	This allows you to use either the Label Specific Options settings or those set in Printer Specific Options (PSO).
<i>Single Protocol Firmware</i>	Changes in firmware affect the commands that the printer accepts. Check this box if your firmware is single protocol.

<i>Send Options to Printer</i>	This will use the currently selected options.
<i>Tag Type</i>	Auto Detect determines the tag type. Select “No Tags” if none is available.
<i>Passcode Write Retries</i>	Number of passcode write retries.

Printronix Error Messages

	Printer turned Off	Cable disconnected	No stock	Print Head up
LPT	Error message: “Printer not Initialized” No retry allowed	Error Message. Lets you retry to Print label.	Error Message. Lets you retry so you can print label.	Error Message lets you retry so you can print Label.
COM	Error Message. Lets you retry, label prints.	Error Message. Lets you retry, label prints.	Error Message. Lets you retry, label prints.	Error Message. Lets you retry, label prints.
Spooled Locally	Windows error message: “Device not connected” Allows retry, reprints when error corrected.	Windows error message: “Device not connected” Allows retry, reprints when error corrected.	Windows error Message. Allows retry, reprints when error corrected.	Windows error Message. Allows retry, reprints when error corrected.
Spooled To Shared	No error message. Labels print when error is corrected.	No error Message. Labels print when error is corrected.	No Error Message. Label Prints when error is Corrected.	No error Message. Label Prints when error is corrected
Spooled to PrintServer	No Error Message. The labels print when error is corrected	No Error Message. The labels print when error is corrected	No Error Message. The labels print when error is corrected	No Error Message. The labels print when error is corrected
Direct IP	No error message. The labels when the error is corrected.	No error message. The labels when the error is corrected.	No error message. The labels when the error is corrected.	No error message. The labels when the error is corrected.

Quick Label Information

Loftware's supported Quick Label printers include:

Pronto 442	Pronto 472	Pronto 474	Pronto 843
------------	------------	------------	------------

These printers use the same language as Datamax Printers; therefore, pertinent information regarding printer options, label options, and error messages may be found in the Datamax section in this appendix.

Sato Information

This section of the printer guide provides information specific to the Sato family of printers. RFID Printers are italicized in shaded cells. Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page. Supported Sato printers include:

CL408	CL408e	CL412	CL412e	CL608
CL608e	CL612	CL612e	CT400	CT410
CX200	CX208	CX212	CX400	GT408e
M10e	M5900	M5900E	M5900RV	M5900RVe
M84 Pro 203, 305, 609 dpi	M8400	M8400RV	M8400RVe	M8400S
M8450	M8459S	M8459Se	M8460S	M8460Se
M8480S	M8485S	M8485Se	M8490S	M8490Se
XL400	XL400e	XL410	XL410e	
<i>CL408e RFID</i>	<i>CL412e RFID</i>	<i>M8485Se RFID</i>		

Refer to the RFID Devices and Tag Types section for information on tag types supported by the Sato RFID printers.

Printer Status

If the printer reports that everything is OK, the level of firmware in the printer is displayed. This function can be a very valuable tool. If there is a problem communicating with the printer, a corresponding error message is displayed.

Interface Cables (Parallel, Serial and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into an LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - For all Sato printers, use an RS232-C null modem cable. The hardware license key is not part of the serial interface since it must always be plugged into an LPT parallel port.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and PC (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Note: Make sure that the printer is powered off any time you plug in or remove a parallel cable from a Sato printer. This prevents Parallel ports from malfunctioning.

Sato Options

Sato Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button.

Sato Label Specific Options

Label Options Section

Print Speed The range of available print speeds varies with the selected printer type.
Print Darkness Allows you to control the darkness of the print. 1 is the nominal setting.

Label Cut Options Section

Cut Option Use Printer Cut Options
 Use label Cut Options

Cut Interval This determines how frequently labels are cut.

Custom Command Section

Allows commands not available in LLM to be sent to the printer.

Send Command - This command instructs Loftware Label Manager when to send a command.

Sato Printer Specific Options

Settings are in dots. Use the dots per inch (dpi) for your printer to find the proper value. For example, if your printer has 203 dpi and you want to set a skip distance of 1 inch, specify a value of 203 for the skip distance.

Label Options Section

Stock Type

- *Continuous* - No gaps or separations between labels.
- *Die Cut* - Gap or separation between each label.
- *Mark Stock* - Black line or mark on the label stock backing.
- *Tag Stock* - Notch in corner of stock.

Character Set Several printer languages are available to print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character.

Print Length

- *7 Inches* sets the printer to the standard print length.
- *14 Inches* sets the printer to the expanded print length (not available for some models).

Expanded Memory Expanded memory requires the use of a PCMCIA card. Using a PCMCIA card does not add on to existing memory, it replaces it. You must also select the Memory Slot in which the card is located. The length of the label that can be printed varies by printer and resolution. Consult a Sato Technical Reference Manual (not available for some models).

Note: The M-84XX printers have two choices for maximum label length: 7" (187mm) or 14" (356mm). When using the 8450 printer at 300 dpi, the printer has a maximum print length of 7" and it ignores this setting.

Memory Slot Selects the Memory Card slot.

- *None* - No memory card is installed.
- *Slot A* - Memory card is installed in location A or 1 in the printer.
- *Slot B* - Memory card is installed in location B or 2 in the printer.

Note: Some printers refer to slot 1 instead of A; A = 1 and B = 2.

Cutter Options Section

Print/Cut Offset This is useful for aligning labels to the cut position.

Cut Interval This determines how frequently labels are cut – a cut interval of 2 cuts every two labels, a cut interval of 1 cut every label, etc.

Base Reference Point Section

The base reference point is the Horizontal and Vertical setting on the label where fields (lines, text, bar codes and graphics) may start printing.

Horizontal Specifies a field's location in the X direction from the current base reference point measured in number of dots at 0 degree orientation.

Vertical Specifies a field's location in the Y direction from the current base reference point measured in number of dots at 0 degree orientation.

Applicator Options Section

Opposite Hand Printer Sato manufactures two applicator engines, a Standard Hand Model and an Opposite Hand Model, identified by looking on the identification tag of the printer or by looking directly at the front of the printer. If the label stock width is less than the print head width and the stock is right justified, this is a Standard Hand Model. An Opposite Hand Model is oriented at lower left as are many of the Sato tabletop printers.

Custom Command Section

Allows commands not available in LLM to be sent to the printer.

Note: Start, End, and Escape commands (STX, ETX, and ESC) are not required at the start and end of the commands. Example: For a base reference point of 10 Horizontal and 10 Vertical, you would only enter the following command:

A3H010V001

Note: Press the Send To Printer button to issue command to the printer.

Custom Firmware Sato manufactures two applicator engines, a Standard Hand Model and an Opposite Hand Model, identified by looking on the identification tag of the printer or by looking directly at the front of the printer. If the label stock width is less than the print head width and the stock is right justified, this is a Standard Hand Model. An Opposite Hand Model is oriented at lower left as are many of the Sato tabletop printers.

Serial Communications Section

<i>Bi-Com Mode</i>	To enable Printer Status capabilities, this box must be checked and the proper dip switch must be set on the printer.
<i>Get Printer Status</i>	Establishes if printer is communicating with the software. Use File Devices Connection to make sure settings are correct.
<i>Send to Printer</i>	When using Custom Commands, press this button to send them to the printer.

Sato RFID Options

<i>Use Old RFID Command</i>	When selected, the old read and write commands for the printer are used.
<i>Tag Type</i>	Select from: EPC Class 0 +, EPC Class 1, EPC 1.19, EPC Class 1 Gen 2.
<i>Number of Retries Per label</i>	This setting determines the number of times to retry writing to the label in case of initial failure.
<i>Transponder Position</i>	This is the distance of the chip from the leading edge. This defaults to 26 mm.

Sato - More Information

Sample of Supported Fonts

The following list represents only a small portion of the fonts available for Sato Printers. Consult Sato's manual or their web site for further information.

* 5x9	Dot Font
* 8x15	Dot Font
* 13x20	Dot Font
* OCR-A	Dot Font
* OCR-B	Dot Font
* 18x30	Smooth Dot Font
* 28x52	Smooth Dot Font
* Vector Font	Vector / Scalable Font

Dot Fonts can be magnified up to 9X horizontally and 9X vertically. The Vector font can be scaled to any size between .05" to 4.88" high.

Printer Capabilities and Limits

<i>Maximum Number of Fields</i>	These printers have no set limit on the number of fields a label may have. However, the size of the entire print job, (excluding image or graphic data), cannot exceed the size of the printer's receive buffer of approximately 8k.
---------------------------------	--

If the printer reports a "receive buffer overflow," you have to reduce the number of fields on the label. The best way to assure that your label does not exceed the printer's buffer size is to do test printing while you are designing the label. When you test print, variable data fields are printed at their maximum length. If you are able to test print a label, it should fit in the printer's receive buffer.

If your label becomes too large to print, you must reduce the number of fields on the label.

Model	Min Print Length	Max Print Length
8400 200 dpi	0.25"	14.0"
8400 150 dpi	0.25"	14.0"
8450 300 dpi	0.25"	7.0"
8450 150 dpi	0.25"	14.0"
8450 100 dpi	0.25"	14.0"

Image Fields Size Limitations - Up to ten images or logos can be used on a label. The maximum image sizes that the printer can handle are shown below. The actual size of the images that your printer can handle may be smaller depending on the available memory in the printer.

Model	Maximum Image Size in Pixels
8400 200 dpi	832 x 832
8400 150 dpi	768 x 768
8450 300 dpi	1536 x 1536
8450 150 dpi	768 x 768
8450 100 dpi	512x512

Performance Considerations

Vector Fonts
(also called
“Scaleable” Fonts) The LLM supports all of the Proportional Vector fonts available on the SATO M-84XX printers. These fonts can be scaled to any size between .05" to 4.88". The quality of these fonts is excellent; however, vector fonts must be “imaged” in the printer before the label is printed, and that process can slow down printing times. It is not uncommon for a label with several sizes of vector fonts to encounter a 3 to 15 second delay per label. Obviously, there is a trade off between font quality and print speed. In addition, Proportional Fonts do not center properly; see the Advanced Techniques chapter for information on centering fonts.

Images When an image is downloaded to the printer, any white space surrounding the actual image is also downloaded to the printer. This wastes printer RAM and increases the amount of time required to download the image. Always crop your images as tightly as possible.

Sato Error Messages

	Printer Turned Off	Cable Disconnected	No Stock	Print Head Up
LPT	Error message. Does not let you retry, the label does not print.	Error message. Lets you retry, the label does not print.	Error message. Does not let you retry, the label does not print.	Error message. Does not let you retry, the label does not print.
COM	Error message after the printer is turned back on. Lets you retry, the label prints.	Error message after the cable is re-connected. Lets you retry, the label prints.	No error message. Once stock is added, all labels print.	No error message. Once the print head is put down all labels print.
Spooled Locally	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.
Spooled to Shared	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message. A Windows error message is displayed. Lets you retry, the label prints.
Spooled to PrintServer	No Loftware error message, a Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message, but a Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message, but a Windows error message is displayed. Lets you retry, the label prints.	No Loftware error message, but a Windows error message is displayed. Lets you retry, the label prints.
Direct IP	No error message. All labels print after the printer is turn back on.	No error message. All labels print after the printer is reconnected.	No error message. All labels print after the printer is re-stocked.	No error message. All labels print after the print head is put down.

TEC Information

This section provides information specific to the TEC family of printers. RFID Printers are italicized in shaded cells. Supported TEC printers include:

B372	B419	B431	B452	B472
B482	B492	B572	B672	B682
B852	B858	B872	B882	B-SX4
B-SX5	<i>B-SX4 RFID</i>	<i>B-SX5 RFID</i>		

Updated printer information is available on Loftware's website, www.loftware.com. See Printers on the Technical Support page. See also the Toshiba section for supported Toshiba printers.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the TEC RFID printers.

Connections

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into an LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Use the serial cable that came with your printer. If it did not come with a cable, consult the printer documentation for cable requirements.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and PC (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the computer.

Network Port - Optional on some printers

TEC Options

TEC Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button.

TEC Label Specific Options

Label Options Section

Print Speed The range of available print speeds in inches per second (IPS) varies with the selected printer type.

Note: The printer may use a slower print speed than you specify in order to maintain print quality.

Note: The actual maximum value supported by the printer varies among different models & different print speeds. Consult your printer manual for further information.

Print Density Adjusts the print density, on some printers, this is known as darkness, or head temperature. The valid range is from 10 to 10. When the value exceeds the range, the printer automatically corrects it to the maximum value.

Tag Rotation

- *Bottom First* – The bottom edge of the label is the leading edge as it is fed out of the printer.
- *Top First* – The top edge of the label is the leading edge as it is fed out of the printer.
- *Bottom First Mirrored* – The bottom edge of the label is the leading edge as it is fed out of the printer, the entire label is printed as a mirror image.
- *Top First Mirrored* – The top edge of the label is the leading edge as it is fed out of the printer, the entire label is printed as a mirror image.

Label Overrides Section

Media Options, Issue Settings, Backfeed Settings, and Fine Position Adjustments each have label overrides. This means that the Label Options settings are used instead of the Printer Options.

Media Options Section

Gap Length When die cut stock is used, this specifies the size (in .1mm) of the gap between each label.

Override Printer Setup If this is checked, the Gap Length value is used; otherwise, the Printer Options setting is used.

Issue Settings Section

Issue Mode

- *Batch Mode* - Normal printing mode; labels are continuously printed and fed out of the printer.
- *Strip Mode* - While in strip mode, the printer presents each label and waits for it to be removed before continuing. The printer does not print labels if there is a label at the strip sensor.
- *Use Printer Setup* – Use the setting from the device Options dialog box.
- *Applicator Mode* – Similar to strip mode except that the printing of each subsequent label is controlled by a pause signal from an expansion I/O device (typically an applicator) rather than the strip sensor.

Cutter Batch Mode must be selected and the optional cutter is required.

- *After Every Job* – Cutting occurs after all labels from each print request are done printing.
- *After Every Label* – Cutting occurs after every label that prints.
- *Disabled* – No cutting occurs
- *Use Cut Interval* – Uses the value that is selected in the Cut Interval.

Note: When using the LPS, note that each occurrence of a *PrintLabel command constitutes a print request.

Cut Interval Designates the number of pieces to be printed before the label is cut. The range is 000 to 100 (no cutting occurs when set at 000)

This setting may yield unexpected results if you use a value that is not an even multiple of the Quantity and/or Duplicates value. For example: If Quantity = 2, Duplicates = 3, and CutInterval = 2, your labels may print/cut in the following sequence:

```
Label 1 Duplicate 1
Label 1 Duplicate 2
<CUT>
Label 1 Duplicate 3
<CUT>
Label 2 Duplicate 1
Label 2 Duplicate 2
<CUT>
Label 2 Duplicate 3
<CUT>
```

Backfeed Settings Section

Backfeed

- *Don't Send Backfeed* – No backfeed commands are sent to the printer.
- *Send Backfeed* - Before printing the first label in a print request the printer backfeeds the specified distance (in .1mm) and after printing the last label it forward feeds the same distance. Use this setting to present the label for manual tear off after printing. This setting is not used when printing multi-up layouts.
- *Use Printer Setup* - Use the setting from the device Options dialog box.
- *Distance* - All measurements are in tenths of a millimeter.

Note: When using the LPS, note that each occurrence of a *PrintLabel command constitutes a print request.

Fine Position Adjustments Section

Don't Send Settings No Fine Position Adjust commands are sent to the printer.

Send Settings Use this setting for making fine adjustments(in .1mm increments) in the Feed Distance, Cutting or Stripping Position, or Backfeed Distance.
Consult your printer manual for further information on setting these values

Use Printer Setup Use the setting from the device Options dialog box.

Feed Range is set between -500 to +500 mm.

Cut/Strip Range is between from -500 to +500 mm.

Backfeed Range is between from -99 to +99 mm.

Graphics Method Section

Use Printer Setup This is the default setting and applies the setting selected in the Printer Setup dialog.

Graphic data is drawn as shown in the images below:



Overwrite Drawing example



OR Drawing example

Custom Command Section

Command You may enter a custom TPCL command string here. You must include the command prefix and terminators ("{" and "|}").

This command is sent when printing a label and when clicking on the *Send To Printer* button. It is sent immediately prior to the **buffer clear** command.

RFID Option Section

Override Printer Setup When checked, the Tag Position setting on this dialog will be used, overriding the selection made from the Printer Specific Options dialog.

Tag Position This sets the feed amount to adjust the RFID tag position before data is written to it. Tag Position can be adjusted in units of 0.1 mm. Feed direction: + : forward, - : backward

TEC Printer Specific Options

Media Options Section

Stock Type

- *Continuous Stock* - Continuous media with no black stripe and no gap.
- *Die Cut Stock* - The label-to-label gap is automatically sensed by the transmissive sensor and the paper position is finely adjusted for every piece.
- *Mark Stock* – The black mark provided on the back side of the stock is automatically sensed by the reflective sensor and the paper position is finely adjusted for every piece. (See the Threshold Set command for more information.)
- *Mark Stock on Print Side* - The black mark provided on the print side of the stock is automatically sensed by the upper reflective sensor and the paper position is finely adjusted for every piece.
- *Preprinted Die Cut Stock* - The label-to-label gap is automatically sensed by the transmissive sensor and the paper position is finely adjusted for every piece according to the value set by the threshold setting (Consult your printer manual for further information on setting the threshold).
- *Punched Hole Stock* - The marginal punched holes (round holes) on the fanfold paper are automatically sensed by the lower reflective sensor. Several round holes are automatically sensed according to the specified length of label, and the paper position is finely adjusted for every piece.

Media Type

- *Direct Thermal* - Direct Thermal type of printing (no ribbon), requires special heat sensitive media.
- *Thermal Transfer* - Thermal Transfer type of printing (ribbon installed).

Gap Length

When die cut stock is used, this is the size (in .1mm) of the gap between each label.

Threshold Set

When Mark Stock is used, the black mark provided on the back of the stock is automatically sensed by the reflective sensor and the paper position is finely adjusted for every piece, according to the value set by the threshold setting. (Consult your printer manual for further information on setting the threshold.)

Ribbon Saver

When checked, if there is a non-print area (in the feed direction) of 20 mm or more in the batch mode, cut mode, or strip mode, ribbon saving is performed automatically.

Note: On some printers, the required non-print area is different; consult your printer manual for more information.

Issue Settings Section

Issue Mode

- *Batch Mode* - Normal printing mode; labels are continuously printed and fed out of the printer.
- *Strip Mode* - While in strip mode, the printer presents each label and waits for it to be removed before continuing. The printer does not print labels if there is a label at the strip sensor.
- *Applicator Mode* – Similar to Strip Mode except that the printing of each subsequent label is controlled by a pause signal from an expansion I/O device (typically an applicator) rather than the strip sensor.

Cutter

- Batch Mode must be selected and the optional cutter is required.
- *After Every Job* – Cutting occurs after all labels from each print request are done printing.
- *After Every Label* – Cutting occurs after every label that prints.
- *Disabled* – No cutting occurs.
- *Use Cut Interval* – Uses the value that is selected in the Cut Interval.

Note: When using the LPS, note that each occurrence of a *PrintLabel command constitutes a print request.

Cut Interval

This designates the number of pieces to be printed before the label is cut. The range is 000 to 100 (no cutting occurs when set at 000). This setting may yield unexpected results if you use a value that is not an even multiple of the Quantity and/or Duplicates value. For example: If Quantity = 2, Duplicates = 3, and CutInterval = 2, your labels may print/cut in the following sequence:

Label 1 Duplicate 1
Label 1 Duplicate 2
<CUT>
Label 1 Duplicate 3
<CUT>
Label 2 Duplicate 1
Label 2 Duplicate 2
<CUT>
Label 2 Duplicate 3
<CUT>

Backfeed

When this check box is enabled, printer backfeeds the stock prior to the printing of the next label a specified distance from 30 to 2000 dpi.

Note: When using the LPS, note that each occurrence of a *PrintLabel command constitutes a print request.

All measurements are in tenths of a millimeter.

Fine Position Adjustments Section

<i>Enable</i>	When checked, the adjustments listed below become active, and can be set.
<i>Feed</i>	Range is set between -500 to +500 mm.
<i>Cut/Strip</i>	Range is between from -500 to +500 mm.
<i>Backfeed</i>	Range is between from -99 to +99 mm.

Graphics Method Section

<i>OR Drawing</i>	Overwrite Drawing is the default PSO setting. Graphic data is drawn, overwriting data in the image buffer.
<i>Overwrite Drawing</i>	

Custom Command Section

<i>Command</i>	You may enter a custom TPCL command string here. You must include the command prefix and terminators ("{" and "l"}").
----------------	---

This command is sent when printing a label and when clicking on the *Send To Printer* button. It is sent immediately prior to the **buffer clear** command.

RFID Option Section

<i>Tag Position</i>	This sets the feed amount to adjust the RFID tag position before data is written to it. Tag Position can be adjusted in units of 0.1 mm. Feed direction: + : forward - : backward
---------------------	---

Supported Features and Limitations

TEC Incrementing/Decrementing Fields - When the printer is capable of doing the incrementing/decrementing internally, it is instructed to do so. This is called "Native Mode." When printing in Native Mode, control returns to the PC almost immediately.

Loftware Label Manager does incrementing/decrementing in software when the printer cannot do it internally and sends down a different set of data for each label. This is called "Extended Mode."

In Extended mode, the Printing dialog box shows the line "Printing Label x of y" and control does not return to the PC until the entire series of labels is printed.

Number of variable fields - There are limits to the number of variable Outline Font, Bitmapped Font and Bar code fields that be printed on a single label. They are as follows:

Variable Outline Font fields = 99
Variable Bitmapped Font fields = 199
Variable Bar code fields = 31

Image Support - Images are downloaded and stored in the printer's image memory. Loftware Label Manager remembers images that are sent to the printer and only resends an image if the image is changed.

Codabar and other Bar Code Symbologies

Loftware has created bar code remaps that are built in to our supported TEC Printers. These are implemented through the use of reserved field names. Here is how it works. Add a bar code to a label designed for a TEC Printer. Look at the table below, and in the Properties Box, choose a symbology from the left column, then start the field name of the bar code with one of the reserved remap names in the right-hand column.

Properties Box Symbol	Reserved Remap Name
Code93	CODABAR
Datamatrix	QRCODE
PostNet	ROYALMAIL
PostNet	KIX

Start/Stop Codes - The default Start/Stop Codes for Codabar are "A" and "D." To change the default Start/Stop Code, from Design Mode, choose *Options | Preferences*, click on the + symbol beside the TEC folder, and follow the instructions to the right to customize the Start/Stop Codes.

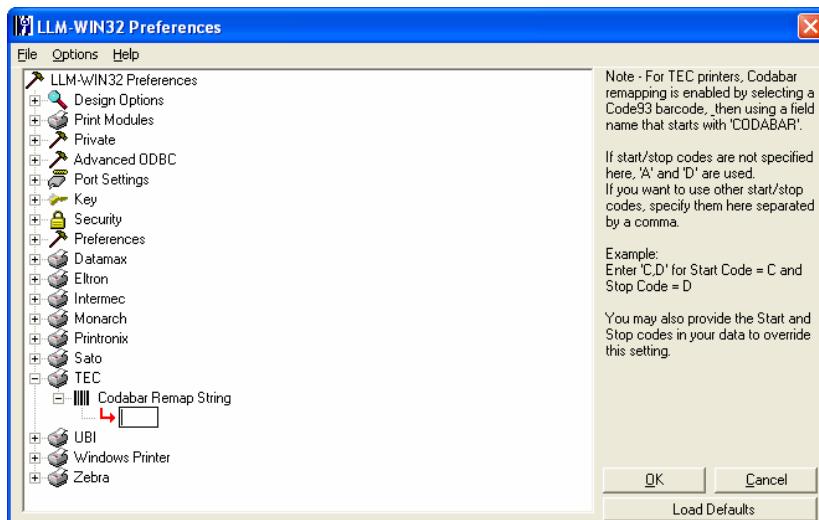


Figure B-C: TEC Codabar Remap String

TEC Error Information

Paper Jam (on LCD screen) - There is a problem with the media. The problem must be corrected, then turn the printer off & back on.

Time Out - If Loftware times out in the middle of sending a large amount of graphic information (images, true type fonts, etc.), the printer may be left in a state where it cannot accept any further commands. If this occurs, you *must* turn the printer off and back on. Try increasing the **timeout value** for the printer in the *Advanced Settings* section of the device *Connection* dialog box.

Printer Commands displayed on LCD screen - If the printer receives commands that are not formatted in a way that it understands, it displays a portion of the command string on the LCD screen. It may look something like the following:

{PC001:0120,0680,

Contact Loftware technical support, and please have the following information ready:

Loftware version number

Printer Model and program version number

A specific example or a description of a way to reproduce the error

Toshiba Information

Supported Toshiba printers include:

B-SA4T	B- SP2D	B- SV4	B-SX6T	B-SX8T
--------	---------	--------	--------	--------

Updated printer information is available on Loftware's website, www.loftware.com. See Printers on the Technical Support page.

For connection information, Device Specific Options, and supported TEC printers, please refer to the TEC section.

UBI Information

This section provides information specific to the UBI family of printers.

301	501E	601E
-----	------	------

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Printer Status (Serial only)

If the status report is positive, the level of firmware in the printer is also displayed. This function can be a very valuable tool. If there is a status problem, a corresponding error message is displayed.

Interface Cables (Parallel, Serial and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into an LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Use the serial cable that came with your printer. If it did not come with a cable, consult the printer documentation for cable requirements.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and PC (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the PC.

Supported Features

Image Support - Images are downloaded and stored in the printer's image memory. Loftware Label Manager "remembers" images that are sent to the printer and only resends an image if the image is changed.

Supported Fonts - Most UBI printers come standard with scaleable fonts. Consult your printer manual for available fonts. TrueType fonts are downloaded to the UBI printers as graphics.

UBI Options

UBI Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button. This section also describes options for the Intermec RFID FP printer.

Note: The Intermec PM4i RFID (FP) Printer is created with UBI printer language. Refer to the Intermec RFID FP sections below for Intermec RFID FP settings.

UBI Label Specific Options

<i>Format</i>	This allows you to choose a unique format number for storage in the printer's memory. Read the Owner's Manual as all files in the printer may be permanently erased by using this instruction.
<i>Performance</i>	The performance range varies with the selected printer type. In this case, the choices are Normal, High, or Ultra High.

Label Options Section

<i>Cut Option</i>	Choose Printer Cut Options (as set in PSOs, which is the default setting) or the Label Cut Options which may be chosen along with the following setting.
<i>Feed Length</i>	Zero is the default, but the Cut Interval may be set to cut after any number of labels.

Advanced Options Section

<i>Character Set</i>	Allows you to choose from a list of Character Sets or use the Character Set from the PSOs.
----------------------	--

Intermec RFID FP Options Section

<i>Use Label or Printer Options</i>	This allows you to use either your Label Specific Options or the options as set in Printer Specific Options (PSOs).
<i>Write Protect RFID Data</i>	When checked, this protects the RFID data written to the tag from being overwritten.

Intermec RFID FP RFID Setup Options Section

<i>Send Setup Options to Printer</i>	When checked, selected settings will be used.
--------------------------------------	---

<i>Void Text</i>	This is the text that will be printed across the label after write retries fail.
<i>Label Retries per Label</i>	This sets the number of attempts to write to the label after an unsuccessful try.
<i>Number of Write Retries per Label</i>	This sets the number of attempts to write to the label after an unsuccessful try. Settings range from 0 to 10.
<i>Tag Adjust</i>	The position of the label will, if necessary, be adjusted before trying to write data to the tag.

UBI Printer Specific Options

Forms Control Section

<i>Start Adjust</i>	This can be a negative or a positive number of dots. A positive Start Adjust value will feed out the specified length of media before the printing starts. A negative value will pull back the specified length of media before the printing starts.
<i>Stop Adjust</i>	This can be a negative or a positive number of dots. A positive Stop Adjust value will increase the normal media feed by the specified value after printing is finished. A negative value will decrease the normal media feed by the specified value after printing is finished.

Refer to your printer guide for recommended feed adjustment settings.

<i>X-Start</i>	This specifies the start of the printable area.
<i>Label Taken Sensor</i>	This detects if the printed label has been removed before the next one is printed.
<i>Disable Print Key</i>	This disables the <Print> key requiring the key to be pressed to print a label.
<i>Ribbon Saver</i>	This turns the ribbon saver "auto economy" feature on in supported printers.
<i>EasySet System</i>	This uses the optional EasySet bar code wand or scanner.

Cutter Options Section

<i>Feed Length</i>	Zero is the default, but this may be set to cut after any number of labels.
<i>Enable Cutter</i>	Enables an optional label cutter. When enabled, the cutter is set to cut a label after printing.

Media Settings Section

<i>Contrast</i>	This controls the darkness of the print.
-----------------	--

Media Options Section

Media Type

- *Fixed Length Strip* – This is used for continuous stock. The length of the media that will be fed out depends on the length of the print window.
- *Label With Gaps* – This is used for adhesive labels mounted on liner.
- *Ticket With Gaps* – This is used for tickets and tags with detection slits.
- *Ticket With Marks* – This is used for labels, tickets, or continuous stock provided with black marks at the back.
- *Variable Length Strip* – This is used for continuous stock. The length of each copy depends on the size of the print images.

Paper Type

- *Thermal Transfer* - Uses ribbon and non-heat sensitive label stock to print. The print head is activated as the label moves underneath heating the ribbon material and melting it onto the label. To increase the quality of the print decrease/increase the speed and increase/decrease the heat as necessary.
- *Direct Thermal* - Uses heat sensitive label stock without the ribbon. The print head is activated as the label moves underneath heating the label stock and activating the heat sensitive material in the stock causing darkening of the material. To increase the quality of the print decrease/increase the speed and increase / decrease the heat as necessary.

Media Sensitivity Guide Section

The sensitivity for a particular type of media and ribbon is critical to achieving high quality printing. If the **Media Type** you are using is listed, select it, and then press "Apply" to achieve the recommended sensitivity setting. The corresponding settings in the Media Settings section will be refreshed.

Advanced Options Section

Memory Module

If a memory card is attached to the printer, you can select it.

Character Set

Several printer languages are available that can print international characters that are not available in the U.S. character set. If your printer supports it, select a different Character Set.

Ext Font Location

Specify the source of additional fonts.

Custom Command Section

Custom Command

Specify printer commands otherwise not available in the Loftware Label Manager dialog boxes. Click on the Send Options box to send the commands during printing.

UBI Error Messages

	Printer Turned Off	Cable Disconnected	No Stock	Print Head Up
LPT	Error message, no retry; the label is not printed.	Error message, no retry; the label is not printed.	Error message, no retry; the label is not printed.	Error message, no retry; no label is printed.
COM Port	No error message. LLM-WIN behaves as if the labels have printed. Printer turned back on= no labels	No error message. When reconnected, all the labels print.	No error message. When you re-stock, all labels print.	No error message. When you put the print head down, all labels print.
USB	Received 'port not found' error. USB port not shown in Port combo of Printer Connection	Error Message. Printing starts when cable reconnected.	Error Message. Printing resumes when stock added.	Error Message. Inconsistent results with printing when head is put back down.
Spooled Locally	No Loftware error message, displays Windows error message. Lets you retry; labels print.	No Loftware error message, displays Windows error message. Lets you retry; labels print.	No Loftware error message, displays Windows error message. Lets you retry; labels print.	No Loftware error message, displays Windows error message. Lets you retry; labels print.
Spooled to Shared	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.
Spooled to PrintServer	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.	No Loftware error message, but displays Windows error message. Does let you retry, the labels print.
Direct IP	No error message. All labels print after the printer is turn back on.	No error message. All labels print after the printer is reconnected.	No error message. All labels print after the printer is re-stocked.	No error message. All labels print after the print head is put down.

Windows Printers

Like other Loftware printers, Windows printers can now be configured from the Loftware Label Manager Device Configuration grid or from a label's LSO page. Previously, you would be directed from LLM to the Control Panel's Windows printer configuration page.

Note: If you are working in an environment with multiple LPS installations and versions, be aware that sharing LLM / LPS version 9.5 Windows printer configuration files with a pre-9.5 version will wipe out any Windows printer configuration settings made in Version 9.5. Windows printer settings made in 9.5 are unsupported in pre-9.5 versions. Refer to "Sharing Windows Printer Configuration Across LPS Versions" in Appendix D for a Best Practices solution.

Windows printer settings available when you select *File / Print / Properties* from Microsoft Office applications and other popular programs can be set from LLM. This includes settings for *Orientation*, *Page Size*, and *Paper Source*. The default for each of the settings is the setting selected in the "Printers

and Faxes" control panel. However, these can be overridden at the label level (LSO) or at the application level (PSO).

A configuration setting that will be used to print a label depends on where the setting is enabled.

- #1. **Label Level:** When set from a label's LSO page, a print setting for the specific label supersedes any setting selected at the application level (PSO) or system level.
- #2. **Application Level:** When set from the printer's PSO page, a Windows printer setting applies to all Loftware label printing and supersedes the system level setting unless a specific label's LSO page specifies a different selection.
- #3. **System Level:** When set from the printer's Properties page accessed from the system's Printers and Faxes, a Windows printer setting applies to all printing, not just to Loftware labels, unless a different setting is specified from the printer's PSO or a label's LSO page.

To summarize, configuration settings for a Windows printer apply to printing in the following sequence:

1. If the LSO setting is enabled and valid for the printer, #1 (the Label Level setting) is used to print the label. Otherwise, #2 (the Application Level setting) is used.
2. If the LSO setting is disabled and the PSO setting is enabled and valid for the printer, #2 (the Application Level setting) is used. Otherwise, #3 (the System Level setting) is used.
3. #3 (System Level setting) is used if both #1 and #2 (LSO and PSO settings) are disabled.
4. If a job containing a *TRAY command is submitted through LPS, the *TRAY command *Paper Source* setting overrides the label setting. (Refer to the *TRAY command section of the "Print Request Data Structures" topic in Chapter 1 of the LPS guide.)

Validation - Internally, the selected *Paper Size* and *Paper Source* PSO configuration items, when saved, are identified by both a string and an ID value. The following steps are taken to validate the configuration setting with the capabilities of the printer.

1. If the saved ID matches one of the IDs in the printer's list, then the saved string is compared to the printer's string for that ID. If the strings match, then that ID is used. Otherwise, see #2 below.
2. If the saved string matches one of the strings in the printer's list, then the printer's ID for that string is used. Otherwise, see #3 below.
3. If a matching ID is found in #1 but the saved string does not match the printer's string for that ID, then that ID is used. Otherwise, see #4 below.
4. Validation failed; the setting is not applied (the printer's control panel configuration is used).

Note: Different printer drivers are not necessarily in synch with these strings and IDs. The table below and the validation scenarios that follow provide an example:

Win Printer 1	Win Printer 2	Win Printer 3	Win Printer 4
Printer Auto Select – 257	Printer auto select - 257	Auto Select - 7	Auto Select - 262
Manual Feed (Tray 1) – 4	Manual Feed (Tray 1) - 258	Manual Feed - 4	Manual Paper Feed – 4
		2000 Sheet Input Tray - 259	Tray 3 - 259

Some Validation Scenarios:

1. A label designed for **Win Printer 1** with a “Manual Feed (Tray 1)” setting, when printed to **Win Printer 2** would result in the Paper Source ID value of 258 being set in the print time configuration (Validation step # 2).
2. A label designed for **Win Printer 3** with a “2000 Sheet Input Tray” setting, when printed to **Win Printer 4**, would result in the Paper Source ID value of 259 being set in the print time configuration (Validation step # 3).

Windows Printers Options

Windows Label Specific Options

Label Specific Options can be set for a Windows printer, except when the target printer is the "Generic Windows Printer."

Leave the settings unchecked if you wish to use Windows Printer settings to print the label.

Configuring a Windows Printer from the label's LSO page will apply the settings to the specific label only. The settings are applied for all printing of this label until changed. To set an option, click on the check box, and then select from the drop-down list.

Print settings specified for a label from the LSO page supersede settings selected from the system (Printers or Faxes) or from the PSO page. Note that because the settings from the LSO page apply to the label and not to the printer, the *Printer Control Panel* button that is accessible from the PSO page is not available.

Refer to the Windows Printers topic for information on how configuration settings are applied to print a label when these settings are specified from different properties pages.

Windows Printer Specific Options

Note: If you are working in an environment with multiple LPS installations and versions, be aware that sharing LLM / LPS version 9.5 Windows printer configuration files with a pre-9.5 version will wipe out any Windows printer configuration settings made in Version 9.5. Windows printer settings made in 9.5 are unsupported in pre-9.5 versions. Refer to "Sharing Windows Printer Configuration Across LPS Versions" in Appendix D for a Best Practices solution.

Leave the settings unchecked if you wish to use the system's Windows Printer settings to print the label.

From the printer's PSO page, you can configure settings for this Windows printer that affect printing at the application level. The settings are applied not just to the specific label but for all label printing, unless a specific label has a different label level setting specified in its LSO page. To set an option, click on the check box, and then select from the list.

Clicking the *Printer Control Panel* button takes you to the Windows printer properties box when you respond to the warning message. Windows printer configuration changes are applied at the system level. This will affect all printing on this printer, not just Loftware label printing.

System printer settings apply if PSO or LSO settings are not set for the label. PSO options when set supersede the system settings and will be used to print the label and all labels, unless a label's LSO

printer settings are specified. When LSO settings are specified, they will be used to print the specific label.

Refer to the Windows Printers topic for information on how configuration settings are applied to print a label when these settings are specified from different properties pages.

Zebra Information

This printer guide provides information specific to the ZEBRA family of printers. RFID Printers are italicized. Loftware-supported Zebra printers include:

105	105S	105SE	105SL
110PAX3	110PAX4	110xiIII Plus	130
140	140xi	140xiII	140xiIII
140xiIII Plus	160S	170PAX3	170PAX4
170xi	170xiII	170xiIII	170xiIII Plus
17XPAX	17XPAX2	220	220xi
220xiII	220xiIII	220xiIII Plus	221
2443 Orion	2684	2722	2742
2746	2746e	2824	2844
2844-Z TLP/LP	3742	3842	3844-Z TLP/LP
90A	90xi	90xiII	90xiII 600dpi
90xiIII	90xiIII Plus	91	95
96xiIII	96xiIII Plus	A300	DA402
HT-146	Px400	QL220	QL320
QL420	R110PAX3	R110PAX4	R110XiIIIPlus
R110Xi	R140	R170Xi	R2844-Z
R402	R4M Plus	RW420	S4M (DPL)
S4M (EPL)	S4M (IPL)	S4M (ZPL)	Stripe 300
Stripe 400	Stripe 500	Stripe 600	T300
TA402	Z4000	Z4M	Z4M Plus
Z6000	Z6M	Z6M Plus	<i>R110 PAX3 RFID</i>
<i>R110 PAX4 RFID</i>	<i>R110XiIIIPlus RFID</i>	<i>R110Xi RFID</i>	<i>R140 RFID (HF)</i>
<i>R170Xi RFID</i>	<i>R402 RFID (HF)</i>	<i>R4M Plus RFID</i>	<i>R2844-Z RFID (HF)</i>

The list above includes former Eltron printers added to the Zebra lineup and supported by Loftware. Information and options on these printers may be found in the Eltron Section of this appendix. They include:

2443 Orion	2684 Strata	2722	2742	2746
2746e	TLP 2824	2844	3742	3844

Updated printer information is available at Loftware's website, www.loftware.com. See Printers on the Technical Support page.

Refer to the RFID Devices and Tag Types section for information on tag types supported by the Zebra RFID printers.

Interface Cables (Parallel, Serial and USB)

These printers usually have a serial interface. A parallel interface is available as an option. Generally, newer models support USB, but this may or may not be standard.

Parallel Interface (optional interface) - Using a standard parallel cable, plug the hardware license key into an LPT parallel port, and connect the cable between the key and the printer.

Serial Interface (standard interface) - Use the serial cable that came with your printer. If it did not come with a cable, consult the printer documentation for cable requirements.

USB Interface (standard or optional interface) - Use a standard USB cable between the printer and PC (or server), and plug in either a USB or Parallel hardware license key to one of the other ports on the PC.

Supported Features

Image Support - Images are downloaded and stored in the printer's image memory. Loftware Label Manager "remembers" images that are sent to the printer and only resends an image if the image is changed.

Supported Fonts - Most Zebra printers come standard with 8 bitmapped fonts, and 1 scalable font. Additional downloadable fonts are also available. Consult your printer manual for available fonts. TrueType fonts are downloaded to the Zebra printers as graphics.

Zebra Options

Zebra Options may be label-specific or printer-specific. Label Specific Options (LSOs) can be accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog (F5). Printer Specific Options (PSOs) can be accessed by clicking on the *Options* button while configuring the printer or by selecting the printer from the *Device Configuration* grid and clicking on the *Options* button. (Zebra RFID options are described in the next section.)

Zebra Label Specific Options

These settings are accessed when you click on the *Label Options* button from the *Label Setup and Properties* dialog. Printer options set when you click on the *Options* button from the *Device Configuration* dialog are described below.

Label Options Section

<i>Print Speed</i>	This option allows the user to vary the speed at which the label prints. The range of available print speeds varies with the selected printer type.
<i>Darkness</i>	Darkness allows you to control the darkness of the print. 0 is the nominal setting.
<i>Label Top</i>	This command moves the entire label format up or down from its current position. Inputting a negative value moves the format toward the top of the label. Inputting a positive number moves the format away from the top of the label.
<i>Flip Label 180 Degrees</i>	This command prints a label that has been inverted 180 degrees.
<i>Print Mirror Image of Label</i>	This command instructs the printer to print the entire label as a mirror image. The image is flipped from left to right.

Print Label as White on Black This instruction reverses the printing of all fields on the label format. The fields are printed as white on a black background.

Character Options Section

Character Set Default is set to using the Character Set specified in Printer Options (PSOs) but the list displays other Character Sets that may be chosen.

Double Byte Character Set Default is set to using the Character Set specified in Printer Options (PSOs) but the list displays other Double Byte Character Sets that may be chosen.

Custom ZPL Section

ZPL Command The ZPL command option sends printer commands otherwise not available in the Loftware Label Manager dialog boxes.

Send Command This command instructs Loftware Label Manager when to send a ZPL command.

Label Cut Options Section

Cut Option Choose Printer Cut Options (as set in PSOs which is the default setting)

Cut Interval Zero is the default but the Cut Interval may be set to cut after any number of labels

True Type Fonts Section

See the following section titled "Zebra TrueType Font Download and Use Instructions."

Zebra Printer Specific Options

These settings are accessed when you click on the *Options* button from the *Device Configuration* dialog. Options set when you click on the *Label Options* button from the *Label Setup and Properties* dialog are described above.

Printer Options Section

PrintMode The Print Mode instruction determines the action the printer takes after a label or group of labels has been printed. There are five different modes of operation:

- *Cutter* - The web separating the printed label and the next blank label to be printed is extended into the cutter mechanism. The label is cut; the blank label is then retracted into the printer so that it can be printed.
- *Peel Off* – After printing, the label is partially separated from the backing. Printing stops until the label is completely removed. Peel off handling requires that the stock in the printer be properly fed through the peel off attachment on the printer. Select only if printer is equipped with an internal rewind spindle.
- *Rewind* - Label and backing are rewound on an optional internal rewind device. The next label is positioned under the printhead.
- *Tear Off* - After printing, the label is advanced so that the web is over the tear bar. Label, with backing attached, can then be torn off manually.
- *Applicator* – After printing, the label may be mechanically removed and applied to an object.
- *Thermal Transfer (Ribbon)* - Uses ribbon and non-heat sensitive label stock to print. The print head is activated as the label moves underneath heating the ribbon material and melting it onto the label. To increase the quality of the print decrease/increase the speed and increase/decrease the heat as necessary.

- *Direct Thermal* (No Ribbon) - Uses heat sensitive label stock without the ribbon. The print head is activated as the label moves underneath heating the label stock and activating the heat sensitive material in the stock causing darkening of the material. To increase the quality of the print, decrease/increase the speed and increase/decrease the heat as necessary.

Backfeed The default is the default for the selected Print Mode. Other options include:

- *After Print* - causes the printer to backfeed (retract) between each label that is printed.
- *Before Print* - causes the printer to backfeed (retract) before each label that is printed.
- *Suppress* - causes the printer to suppress the backfeeding or retracting action before print and after print.
- *Suppress Except Last Label* - causes the printer to suppress the backfeeding or retracting action before print and after print, except before or after the last label has printed.
- *Continuous* - No gaps or separations between labels.
- *Non-Continuous* – Gap, perforation or separation between each label.
- *Mark Stock* - Black line or mark on the label stock backing.
- *Web* – Perforation, gap, or separation between each label.

Stock Type Number of printed labels between cutting. If the cutter is enabled, and the cut interval is set to 0 (zero), then the printer cuts the label after the batch.

Cut Interval Adjusts the rest point of the media after a label is printed, which changes the position at which the label can be torn off or cut. By default, the Tear Off settings are sent to the printer. If you do not want any Tear-Off settings sent to the printer, this may be disabled in Preferences. In LLM Design Mode: Options | Preferences | Zebra.

Tear Off

Download Graphics To DRAM – The default location for graphic storage is the printer's internal memory. This is volatile memory; if the printer is powered off, the graphics are lost.

- *EEPROM* - This is a battery-backup type memory. If the printer is powered off, the graphics remain in memory.
- *PCMCIA* - This is a memory card which can be removed from the printer.

Always Download Format Instructs the Loftware Label Manager system to send the label format with every print request.

Override Pause Count This overrides the Paused Count setting, which is controlled by the Cut Interval selection.

Enable Zebra Network This setting enables the printer to connect with the Zebra Network.

Ignore Printer Status When this option is enabled, data is sent directly to the printer without statusing. In this mode, the Loftware Label Manager system does not get messages back from the printer in the event an error occurs.

Use ZPL II This function enables the use of ZPL II commands. See the ZPL II manual for information on commands.

Only re-send fields that have changed When checked, only the data that has been changed is re-sent for printing.

Send Options [Label/Printer] Checked by default, which sends all label and printer options. When unchecked, only the Map Clear command is sent.

Font Options Section

<i>Character Set</i>	Several printer languages are available to print international characters that are not available in the U.S. character set. See the appendix section of your printer guide to find the corresponding hex codes used to select the desired character.
<i>DB Char Set</i>	The list displays options for Double Byte Character Set.

Custom Command Section

<i>ZPL Command</i>	The ZPL command option sends printer commands otherwise not available in the Loftware Label Manager dialog boxes.
<i>Send Command</i>	Send Command instructs the Loftware Label Manager system when to send the ZPL Command.

Real Time Clock Section

These settings will apply only if the Real Time Clock option is supported by and installed in the printer. This will place a time/date stamp on the label.

Currently, the following Zebra printers support the RTC option:

110PAX3	110PAX4	110xiIII Plus	140xiII	140xiIII
140xiIII Plus	170PAX3	170PAX4	170xiII	170xiIII
170xiIII Plus	17XPAX	17XPAX2	220xiII	220xiIII
220xiIII Plus	2844-Z TLP/LP	3844-Z TLP/LP	90xiII	90xiIII 600dpi
90xiIII	90xiIII Plus	96xiIII	96xiIII Plus	DA402
QL220	QL320	QL420	R110PAX3	R110PAX4
R110XiIIIPlus	R110Xi	R140	R170Xi	R2844-Z
R402	R4M Plus	RW420	S4M (ZPL)	Stripe 400
Stripe 600	TA402	Z4M	Z4M Plus	Z6M
Z6M Plus	<i>R110 PAX3 RFID</i>	<i>R110 PAX4 RFID</i>	<i>R110XiIIIPlus RFID</i>	<i>R110Xi RFID</i>
<i>R140 RFID</i>	<i>R170Xi RFID</i>	<i>R402 RFID</i>	<i>R4M Plus RFID</i>	<i>R2844-Z RFID</i>

Currently, the following Imtec printers support the RTC option:

Apply Pro w/140xiII	Apply Pro w/170xiII	Apply Pro w/90xiII
Apply Pro w/90xiII (600 dpi)	Protector w/140xiII	Protector w/170xiII
Protector w/90xiII	Protector w/90xiIII (600 dpi)	Value Pro w/140xiII
Value Pro w/90xiII		

<i>Field Clock Indicators</i>	Specify the character(s) that will precede and indicate a time/date value. For example, the default indicator for the primary clock is %. There are no default indicators for the secondary and tertiary clocks. Most printable characters are acceptable except those that conflict with ZPL II commands. Refer to your ZPL II manual (volume 2) for more information. If indicators for secondary and tertiary clocks are entered, separate the characters with a comma.
-------------------------------	---

<i>Set Date/Time</i>	This displays options for the current clock date/time. Select AM, PM, or Military time format.
<i>Set Clock Offset</i>	This displays options for the secondary and tertiary clocks. Time and date are determined by adding the offsets to the primary clock reading. The Language selection determines the language to use for the days and the months. In Start Time mode, the time printed on the label is the Real Time Clock time when label formatting begins. In Time Now mode, the time printed on the label is the Real Time Clock time when label is placed in the print queue. Real Time Clock can be set either in the printer's LCD or from the printer's PSO dialog. Fields that will be using Real Time Clock should be defined as "fixed fields" in Loftware. The fields must use the reserved field name of <i>ZtimeFieldxxx</i> , where x allows for unique identification. Only the first 10 characters of the reserved field name are evaluated, and so the field can be uniquely defined after the reserved portion. The fixed fields must provide the date formatting as data.
As a minimum, the Field Clock Indicator should contain a % for use with the primary clock. If all three clocks are used the suggested syntax for the Field Clock Indicators might look like: %,#,@ (Note that ^ and ~ are excluded from use. Any symbol not expected to be used in the printed output may be used.)	

Sample data in the fixed field may be as follows based on the above field indicator settings:

Field Name (in Properties dialog) – ZtimeFieldCurDate
 Primary clock data: %A, %B %d, %Y %I:%M
 Printed result: Monday, January 01, 2001 01:06

Field Name (in Properties dialog) – ZtimeFieldSecDate
 Secondary clock data: #A, #B #d, #Y #I:#M
 Secondary clock offset values all set to 3
 Printed result: Sunday, April 4, 2004 04:07

Field Name (in Properties dialog) – ZTimeFieldTerDate
 Tertiary clock data: @A, @B @d, @Y @I:@M
 Tertiary clock offset values all set to 5
 Printed result: Tuesday, June 06, 2006 06:12

Zebra RFID Printer Options

The following information applies to Loftware-supported Zebra RFID printers.

Zebra Label Specific RFID Options

<i>Use Label or Printer Options</i>	This allows you to use either your settings in the Label Specific Options or those set in the Printer Specific Options.
-------------------------------------	---

Set Up Options Section

<i>Send Setup Options to Printer</i>	When checked, the setup options selected on this dialog are used for printing.
<i>Tag Type</i>	Auto-detect automatically determines the tag type by querying the tag. Select "None" if no tags are available. If the printer supports it, select from: EPC Class 0, EPC Class 0 Plus, EPC Class 1 64-bit, EPC Class 1 96-bit, ISO 18000-06B, EPC Gen2, Philips HF I-Code, Philips HF I-Code ISO

15693, TI HF Tag-it, or TI HF Tag-it ISO 15693. (Note that not all tag types are supported by all printers. Refer to the RFID Devices and Tag Types section.)

<i>Transponder Position From Top of Label</i>	The position in Dot Rows from the top of the label to the RFID Transponder embedded in the label. The default position is 8 Dot Rows from the top of the label. '0' dot rows means that the Transponder is not to be moved from its default position.
<i>Length of Void Printout</i>	This lets you determine how much of the label is printed with a "VOID" warning when the encoding or reading of the RFID tag fails. The default of "0" prints the VOID message the entire length of the label.
<i>Number of Labels to Retry in Case of Read/Encode Failure</i>	This setting allows you to determine how many retries are allowed after a failure while encoding the RFID tag or label. As the cost of RFID smart labels and tags is still fairly high, setting this to a low number may be advisable.

Write Options Section

<i>Number of Times to Retry</i>	This setting determines the number of times to retry writing to the tag in case of initial failure. The default setting is 0.
<i>Feed Label After Writing</i>	When checked, the label is fed from the printer for removal and use after writing.
<i>Enable RFID Motion</i>	By default, labels automatically print at the end of the format. When deselected, the label is not moved when it reaches the program position. Note that this setting must be specified for each label; it is not automatically carried over from one label to the next.
<i>Write Protect</i>	When checked, the data written to the tag is protected and the tag may not be written to again. This could be used for example, as a pre-emptive step to prevent a label in transit from being altered, thus rendering the original encoding to the tag invalid.

Read Options Section

<i>Number of Times to Retry</i>	This setting determines the number of times to retry writing to the tag in case of initial failure. The default setting is 0.
<i>Enable RFID Motion</i>	By default, labels automatically print at the end of the format. When deselected, the label is not moved when it reaches the program position. Note that this setting must be specified for each label; it is not automatically carried over from one label to the next.
<i>Feed Label After Reading</i>	When this is checked, the label is fed from the printer for removal and use after reading.

Zebra Printer Specific RFID Options

Set Up Options Section

<i>Send Setup Options to Printer</i>	When this is checked, settings are used for printing.
--------------------------------------	---

<i>Tag Type</i>	This is set to Auto-Detect, by default, which automatically determines the tag type by querying the tag. Other choices are None (no tags available), Texas Instruments Tag-it, and Philips I-Code.
<i>Transponder Position From Top of Label</i>	The position in Dot Rows from the top of the label to the RFID transponder embedded in the label. The default position is 8 Dot Rows from the top of the label. '0' dot rows means that the media should not to be moved from its default position. This setting may be particularly important if you are not using Zebra RFID label stock in your printer, as the transponder position may be quite different.
<i>Length of Void Output</i>	This lets you determine how much of the label is printed with a "VOID" warning when the encoding or reading of the RFID tag fails. The default of "0" prints the VOID message the entire length of the label. This may or may not be helpful, as the VOID printing would use up more of the printer's ribbon, but on the other hand, it would make the failure of the tag's encoding or reading more visible and therefore more evident.
<i>Number of Labels to retry in case of read/encode failure</i>	This setting allows you to determine how many retries are allowed after a failure while encoding or reading the RFID tag.

Write Options Section

<i>Number of Times to Retry</i>	This setting determines the number of times to retry writing to the tag in case of initial failure. The default setting is 0.
<i>Enable RFID Motion</i>	By default, labels automatically print at the end of the format. When deselected, the label is not moved when it reaches the program position. Note that this setting must be specified for each label; it is not automatically carried over from one label to the next.
<i>Write Protect</i>	When checked, the data written to the tag is protected, and the tag may not be written to again. This could be used, for example, as a pre emptive step to prevent a label in transit from being altered thus rendering the original encoding to the tag invalid. The default setting is not checked.

Read Options Section

<i>Number of Times to Retry</i>	This setting determines the number of times to retry reading the tag data in case of initial failure. The default setting is 0. This setting only applies if you have set the Human Readable property of the RFID field to "Read Tag." See Chapter 5 for more information.
<i>Enable RFID Motion</i>	By default, labels automatically print at the end of the format. When deselected, the label is not moved when it reaches the program position. Note that this setting must be specified for each label; it is not automatically carried over from one label to the next.

Zebra Printer Capabilities and Limits

<i>Maximum Number of Fields</i>	The maximum number of fields per label format is 200.
<i>Maximum Image Size</i>	The maximum size of any image is 600 dots x 600 dots. The physical size of the image depends on the resolution of your printer. Note that the actual size

of images the printer is able to handle is determined by the amount of RAM installed in your printer. If images are displayed in Loftware Label Manager label design but do not print, the printer may not have enough memory to store the image.

*Printed Bar code
Does Not Match the
Design*

It is possible to define a combination of attributes, such as line width, ratio, etc., that the printer cannot produce, or might print in one orientation but not another. Under these conditions, the printer may print the "closest possible" bar code. This usually occurs when you define a bar code with line width 1. The printer sometimes "promotes" this to a line width 2 bar code, resulting in a printed bar code that is twice as long as desired.

Disappearing Fields

The Advanced printers do not print any field with an invalid definition. For example, if you define a UPC-A bar code, which requires exactly 11 digits, and then provide alphabetic data at print time, the printer does not print the field. If your label test prints correctly but fields do not print in production printing, check your data carefully to make sure it is valid.

Using CODE 128

Refer to the section on building Code 128, UCC-128 symbologies.

*Zebra Incrementing /
Decrementing Fields*

When the printer is capable of doing the incrementing/decrementing internally, it is instructed to do so. This is called Native Mode. When printing in Native Mode, control returns to the PC almost immediately.

Loftware Label Manager does incrementing/decrementing in software when the printer cannot do it internally and sends down a different set of data for each label. This is called "Extended Mode." In Extended mode, the Printing dialog box shows the line "Printing Label x of y" and control does not return to the PC until the entire series of labels is printed.

Set Label Size

The label size is used as a frame of reference. When you rotate your label, or when you rotate the printing of a label, it is imperative that Loftware Label Manager Design knows the exact size of the stock on which you are printing.

Zebra TrueType Font Download and Use Instructions

Some Zebra printers are capable of storing fonts. Zebra provides a utility called ZTools™ that allows TrueType Fonts (TTF) to be downloaded to a memory location. The advantage to this is that you do not have to remap a font and guess at what size it prints on the label.

Note: Contact Zebra for information regarding your printer's capability of storing fonts and for the latest version of ZTools™ (3.1). **Important:** Do an Options | Test Print from ZTools™ to verify that the font is successfully downloaded to the printer.

Part 1 - Font Download Instructions

1. Open the Zebra ZTools (Version 3.1) program.
2. Select File | Add from the menu.
3. From the "Select File" dialog, select the font from the left column to be downloaded (.ZST extension).

Note: The font you select to download must have been converted by ZTools from the PC (TTF extension) to ZTools prior to this selection.

4. Click OK; the dialog box is no longer displayed.

5. Select *View | Download*.
6. The Zebra Tools Download dialog box is displayed.
7. Press the button with the "-" icon (displayed in blue). The icon changes to a checkmark.
8. Press the button with the "Stop Light" icon.

The Stop Light icon becomes gray, and the font starts downloading to the printer.

Part 2 – Loftware Design Instructions

1. Open Loftware Label Manager in Design mode.
2. Open the label in Design, press **F6** and the *Options* button.
3. Check the *Recall TrueType Fonts* box, and then press *OK*.
4. Place a field on the label; change the *Font Category* property to *TrueType Fonts*.
5. Select the downloaded font from the Font list in the properties box.
6. Print the label.

Points to remember:

- Either *all* TrueType Fonts are sent to the printer as bitmaps, or they are *all* recalled from the printer. It is not possible to mix and match them.
- If the printer is turned off, the font is lost unless it has been downloaded to something other than volatile ram.
- This functionality is only available in Versions 5.5.1.8 and greater of Loftware.
- The printer must have the correct version firmware and must have been created with Zebra Printer Language (ZPL).

Zebra Error Messages

	Printer Turned Off	Cable Disconnected	No Stock	Print Head Up
LPT	Error message. All labels print when the printer is turned back on.	Error message. When the printer is re-connected, all labels print.	Error message. When the stock is added, all labels print.	Error message. When the print head is down, all the labels print.
COM	Not tested.	Not tested.	Not tested.	Not tested.
Spooled Locally	Error message. The labels print once the printer is turned back on.	Error message. The labels print once the printer is reconnected.	Error message. The labels print after stock is added.	Error message. The labels print fine after print head is down.
Spooled to Shared	No error msg. When the printer is turned back on, all labels print.	No error msg. When reconnected all labels print.	No error msg. When stock is added all labels print.	No error msg. When print head is put down all the labels print.
Spooled to PrintServer	No error msg. When the printer is on, all labels print	No error msg. When reconnected, the labels print.	No error msg. When stock is added, all labels print.	No error msg. When head is down, the labels print.
Direct IP	No error msg. When the printer is turned back on all labels print.	No error msg. If reconnected, the labels do not print.	No error msg. When stock is added, all labels print out.	No error msg. When print head is put down, all the labels print.

Tag Configuration

This section outlines relevant block configuration of the RFID tags supported by Loftware RFID devices.

HF RF tagging system uses the 13.56 MHz frequency range. Currently, HF tag types are supported by some Loftware RFID printers. See the next section on RFID Devices and Tag Types.

HF Tag Type	Configurable Data Blocks
Philips HF I-Code	Blocks 5 to 15 can be encoded, each with a block size of 4 bytes. (16 blocks total; blocks 0 to 4, which are not user-accessible, contain the serial number, write-access conditions and configuration bits.) Supports Lock Tag after Writing, Overflow, EAS, and AFI features.
Philips HF I-Code ISO 15693	The higher blocks – 0 to 27 – are used for user data, each with a block size of 4 bytes. RF interface is defined by the ISO 15693 standard. (32 blocks total; the lowest blocks (-4 to -1), which are not user-accessible, contain the unique identifier, write access conditions, and other special data.) Supports Lock Tag after Writing, Overflow, EAS, AFI, and DSFID features.
TI HF Tag-it	User data is contained in blocks 0-7. Each block consists of 4 bytes. Supports Lock Tag after Writing and Overflow features.
TI HF Tag-it ISO 15693	User data is organized into 64 blocks (0 to 63). Each block consists of 4 bytes. RF interface is defined by the ISO 15693 standard. Supports Lock Tag After Writing, Overflow, AFI, and DSFID features.

The following UHF tag types are supported by Loftware. See also the next section on RFID Devices and Tag Types.

UHF Tag Type	User-accessible Data Blocks
UHF 64-bit Class 1	PC block = 1 byte - used to lock the tag EPC block = 8 bytes - used for EPC / DOD / URI
UHF 96-bit Class 1	PC block = 1 byte - used to lock the tag EPC block = 12 bytes used for EPC / DOD / URI
UHF 96-bit Class 0+	KC block = 3 bytes - used to lock the tag EPC block = 12 bytes used for EPC / DOD / URI USR block = 13 bytes - used for user specific data
UHF UCODE EPC 1.19	Block #0 = 12 bytes
UHF ISO 18000-6B	Block #0 = 200 bytes
UHF Class 1 Gen 2	32-bit Access Password 32-bit Kill Password 96-bit EPC 32-byte USR block

RFID Devices and Tag Types

In order to encode data on RFID labels and tags, an RFID device must support specific RFID commands. Some RFID printers exclusively support encoding to UHF tag types. Others will write only to HF tags. A few printers support both UHF and HF tags.

The tables below list current Loftware RFID printers and the tag types each supports.

RFID UHF Printers

This table shows Loftware RFID Gen 1 and Gen 2 UHF printers for smart labels and the UHF tag types each supports.

	UHF Gen 1					UHF Gen 2	
	64-bit Class 1	96-bit Class 1	96-bit Class 0+	UCODE EPC 1.19	ISO 18000-6B	Impinj Monza	TI Dallas
<i>Avery 6404 RFID</i>	X	X		X			X
<i>Avery 6405 RFID</i>	X	X		X			X
<i>Avery 6406 RFID</i>	X	X		X			X
<i>Avery 6408 RFID</i>	X	X		X			X
<i>Avery ALX 924 RFID</i>	X	X		X			X
<i>Avery ALX 925 RFID</i>	X	X		X		X	X
<i>Avery ALX 926 RFID</i>	X	X		X			X
<i>Avery DPM 4 RFID</i>	X	X		X			X
<i>Avery DPM 5 RFID</i>	X	X		X			X
<i>Avery DPM 6 RFID</i>	X	X		X			X
<i>Datamax A-4212 RFID</i>	X	X					
<i>Datamax A-4310 RFID</i>	X	X					
<i>Datamax A-4408 RFID</i>	X	X					
<i>Datamax A-4606 RFID</i>	X	X					
<i>Datamax A-6212 RFID</i>	X	X					
<i>Datamax A-6310 RFID</i>	X	X					
<i>Datamax H-4212X RFID</i>		X	X	X	X	X	X
<i>Datamax H-4310X RFID</i>		X	X	X	X	X	X
<i>Datamax I-4210 RFID*</i>	X	X	X	X		X	X
<i>Datamax I-4212 RFID*</i>	X	X	X	X		X	X
<i>Datamax I-4308 RFID*</i>	X	X	X	X		X	X
<i>Datamax I-4406 RFID*</i>	X	X	X	X		X	X
<i>Datamax I-4604 RFID*</i>	X	X	X	X		X	X
<i>FOXIV SPLA 7204e RFID</i>	X	X	X	X		X	X
<i>FOXIV SPLA 7304e RFID</i>	X	X	X	X		X	X
<i>IBM Infoprint 6700 5504-R40 (203 dpi) RFID</i>	X	X	X	X		X	X
<i>IBM Infoprint 6700 5504-R40 (300 dpi) RFID</i>	X	X	X	X		X	X
<i>IBM Infoprint 6700 5504-R60 (203 dpi) RFID</i>	X	X	X	X		X	X
<i>IBM Infoprint 6700 5504-R60 (300 dpi) RFID</i>	X	X	X	X		X	X
<i>IBM Infoprint 6700 5504-R80 (203 dpi) RFID</i>	X	X	X	X		X	X
<i>IBM Infoprint 6700 5504-R80 (300 dpi) RFID</i>	X	X	X	X		X	X
<i>Intermec EasyCoder PM4i RFID (FP)</i>	X	X		X	X	X	X
<i>Intermec EasyCoder PM4i RFID (IPL)</i>	X	X		X	X	X	X

	UHF Gen 1					UHF Gen 2	
	64-bit Class 1	96-bit Class 1	96-bit Class 0+	UCODE EPC 1.19	ISO 18000-6B	Impinj Monza	TI Dallas
<i>Monarch 9855 RFID</i>	X	X					
<i>Monarch 9855 RFMP</i>	X	X	X	X		X	X
<i>Printronix LPA8204r RFID</i>	X	X	X	X		X	X
<i>Printronix LPA8304r RFID</i>	X	X	X	X		X	X
<i>Printronix SL5204 RFID</i>	X	X	X	X		X	X
<i>Printronix SL5204r RFID</i>	X	X	X	X		X	X
<i>Printronix SL5304 RFID</i>	X	X	X	X		X	X
<i>Printronix SL5304r RFID</i>	X	X	X	X		X	X
<i>Printronix SL5306r RFID</i>	X	X	X	X		X	X
<i>Printronix SL4M RFID</i>	X	X	X	X		X	X
<i>Printronix SLPA5204r RFID</i>	X	X	X	X		X	X
<i>Printronix SLPA5304r RFID</i>	X	X	X	X		X	X
<i>Printronix SLPA7204e RFID</i>	X	X	X	X		X	X
<i>Printronix SLPA7304e RFID</i>	X	X	X	X		X	X
<i>Printronix SLPA8204r RFID</i>	X	X	X	X		X	X
<i>Printronix SLPA8304r RFID</i>	X	X	X	X		X	X
<i>Printronix T4M RFID</i>	X	X	X	X		X	X
<i>Printronix T5204 RFID</i>	X	X	X	X		X	X
<i>Printronix T5204r RFID</i>	X	X	X	X		X	X
<i>Printronix T5206r RFID</i>	X	X	X	X		X	X
<i>Printronix T5208r RFID</i>	X	X	X	X		X	X
<i>Printronix T5304 RFID</i>	X	X	X	X		X	X
<i>Printronix T5304r RFID</i>	X	X	X	X		X	X
<i>Printronix T5306r RFID</i>	X	X	X	X		X	X
<i>Printronix T5308r RFID</i>	X	X	X	X		X	X
<i>Sato CL408e RFID*</i>	X	X			X	X	X
<i>Sato CL412e RFID</i>	X	X			X	X	X
<i>Sato M8485Se RFID</i>	X	X				X	X
<i>TEC B-SX4 RFID</i>	X	X		X	X	X	X
<i>TEC B-SX5 RFID</i>	X	X		X	X	X	X
<i>Zebra R110 PAX3 RFID</i>	X	X					
<i>Zebra R110 PAX4 RFID</i>	X	X	X		X	X	X
<i>Zebra R110 XiIIIPlus RFID</i>			X				
<i>Zebra R110 Xi RFID</i>	X	X	X		X	X	X
<i>Zebra R170Xi RFID</i>	X	X	X		X	X	X
<i>Zebra R4M Plus RFID</i>	X	X					

Table B-1: Software-supported UHF RFID Printers and Tag Types

* The Datamax I-4210 RFID, I-4212 RFID, I-4308 RFID, I-4406 RFID, I-4604 RFID, and the Sato CL408e RFID also support HF encoding. See Table B-3 below.

RFID HF Printers

The table below shows Loftware RFID HF printers for RFID smart labels and the HF tag types that each supports. Note that the Datamax printers on this table also support UHF tags. The Sato printer also supports UHF tags. (These are listed in the tables above and/or below.)

	Philips HF I-Code	Philips HF I-Code ISO 15693	TI HF Tag-it	TI HF Tag-it ISO 15693
<i>Datamax I-4210 RFID*</i>		X		X
<i>Datamax I-4212 RFID*</i>		X		X
<i>Datamax I-4308 RFID*</i>		X		X
<i>Datamax I-4406 RFID*</i>		X		X
<i>Datamax I-4604 RFID*</i>		X		X
<i>Sato CL408e*</i>	X	X	X	X
<i>Zebra R140 RFID</i>	X		X	
<i>Zebra R2844-Z RFID</i>	X	X	X	X
<i>Zebra R402 RFID</i>	X	X	X	X

Table B-2: Loftware-supported HF RFID Printers and Tag Types

* The Datamax I-4210 RFID, I-4212 RFID, I-4308 RFID, I-4406 RFID, I-4604 RFID, and the Sato CL408e RFID also support UHF encoding. See Table B-3 below.

RFID HF / UHF Printers

This table shows Loftware RFID printers for smart labels that support both HF and UHF and the tag types each supports.

	UHF Gen 1					UHF Class 1 Gen 2		HF Gen 1			
	64-bit Class 1	96-bit Class 1	96-bit Class 0+	UCODE EPC 1.19	ISO 18000-6B	Impinj Monza	TI Dallas	Phillips I-Code	Phillips I-Code ISO15693	TI Tag-it	TI Tag-it ISO 15693
<i>Datamax I-4210 RFID</i>	X	X	X	X		X	X		X		X
<i>Datamax I-4212 RFID</i>	X	X	X	X		X	X		X		X
<i>Datamax I-4308 RFID</i>	X	X	X	X		X	X		X		X
<i>Datamax I-4406 RFID</i>	X	X	X	X		X	X		X		X
<i>Datamax I-4604 RFID</i>	X	X	X	X		X	X		X		X
<i>Sato CL408e</i>	X	X			X	X	X	X	X	X	X

Table B-3: Loftware RFID Printers that support HF and UHF Tag Types